SCIENTIFIC TEMPERANCE WORK

GREW SCHOOL, HYDE PARK, MASS.

SIXTH YEAR PUPILS

HYDE PARK
HISTORICAL
SOCIETY.

GIFT OF
Grew School.

ADDED 1901

Scientific Temperance

and

Hygiene.

Grew School.

Hyde Park Mass.

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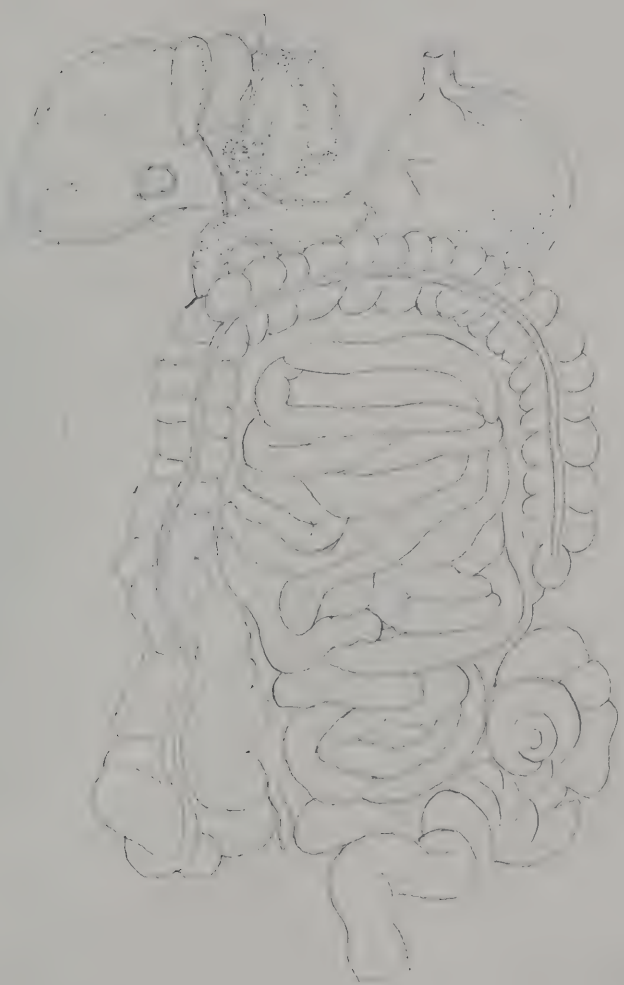

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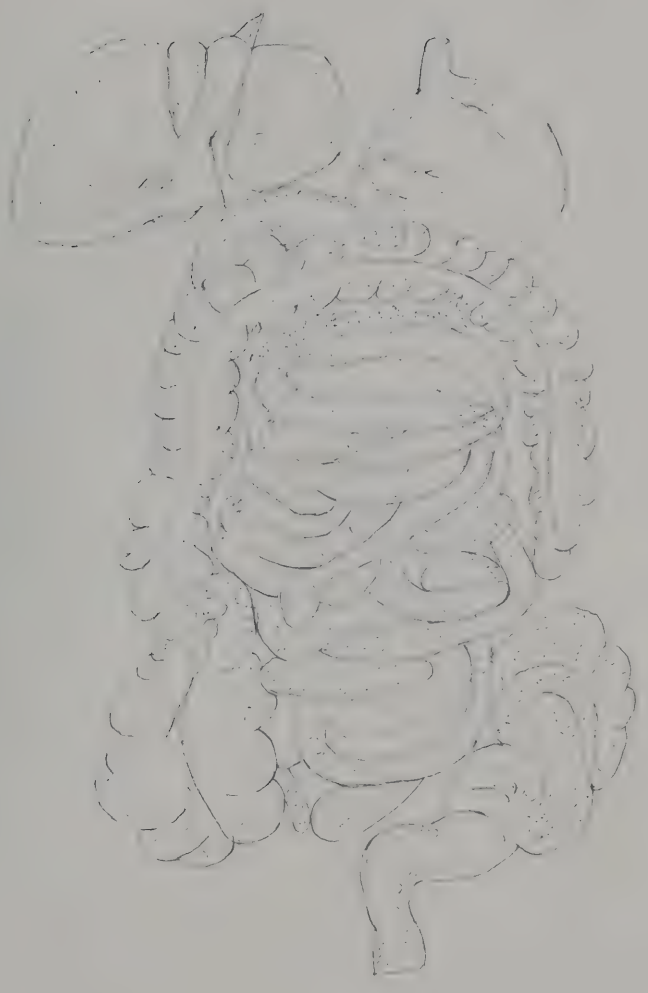

[illegible] a diary of [illegible]
[illegible] said that [illegible]
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Sixth Year of Study.

Digestion.

Digestion is the changing of the food to make it ready to go into the blood.

The organs of digestion are the mouth, esophagus, stomach, and intestines. These organs are sometimes called the food canal. All along this canal are little glands, which secrete juices that help in digestion.

The food is cut by the front and ground by the back teeth. While the food is being chewed the saliva mixes with it.

The saliva changes starch to sugar. This is proved by eating a common

cracker. First it is tasteless and
then it gradually becomes
sweeter.

The esophagus is a long,
muscular tube going from
the mouth to the stomach.
All along the esophagus
are ring-shaped muscles.
After the food has gone
into this tube one of these
muscles contracts and the
food goes down to the next
one and so on until it gets
to the stomach.

The stomach is a muscu-
lar, pear-shaped bag which
holds about two quarts.
It has three coats. The out-
er one is a soft skin, the sec-
ond or middle one is made
of muscles, and the third

on the inner coat to the food is a soft mucous membrane. The stomach has two openings. One to let the food in, and the other to let the undigested food into the intestines.

The gastric juice which comes from the glands in the stomach mixes with the food, this with the churning motion which is caused by the muscles of the stomach contracting digests the food. The food is very much changed by digestion. It is a soft mass called chyme. This chyme goes into the intestines.

Which is a long tube about one inch in diameter and twenty feet long.

These twenty feet are coiled about the abdomen.

The liver is on the right of the intestines. It helps digestion by sending in gall or bitter, green bile which digests the fatty foods.

The pancreatic juice is in the pancreas.

It finishes the work the saliva began. The intestinal juice dissolves everything that the other juices cannot digest. The food after it is all digested is called chyle.

The food is taken into the blood through the lacteals. The albuminous food is taken directly from the stomach.

The inner walls of the intestines look like frost, the chyle is taken into each one of these lacteals and carried to all parts of the body.

The tubes that suck up the chyle are called lacteals.

Alcohol greatly hinders the work of digestion. It makes the pepsin sink to the bottom and so the food is not digested properly. Alcohol also irritates the lining of the stomach.

When alcohol is taken the liver either shrinks and hardens or fat grows

around it. In either case the liver cannot secrete the bile. And the food is not well digested.

Tobacco also hinders digestion. It wastes the saliva and there is not enough to digest the food. Tobacco also hinders poisons the lining of the mouth.

Once a man named Alexis St. Martin was shot and when the place healed there was a hole left and through this could be seen the process of digestion.

Dr. Beaumont looked into his stomach every day for years, and kept a diary of what he saw there.

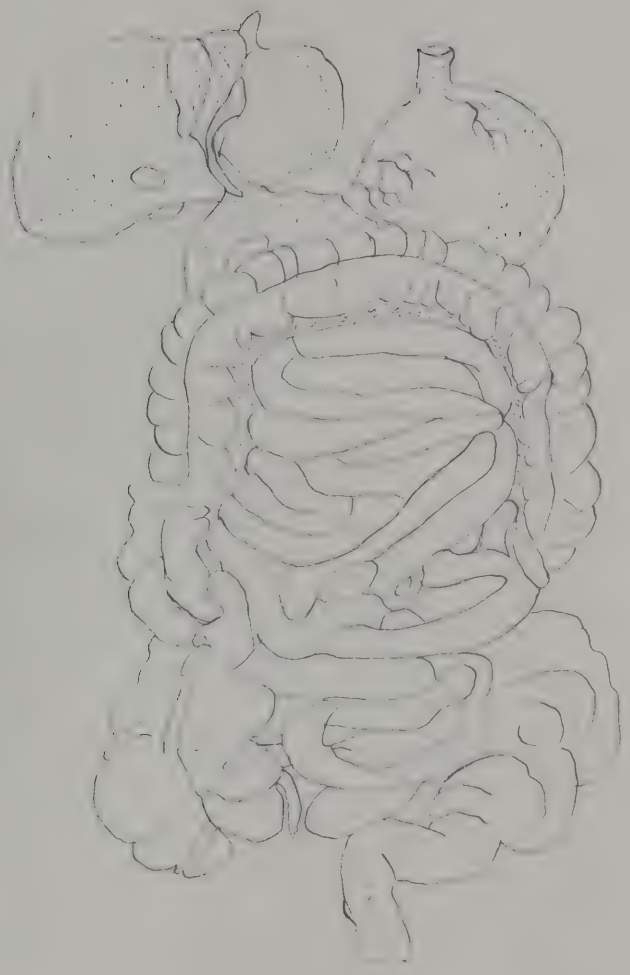
Dr. Beaumont said that when St. Martin had been drinking the lining of his stomach would be very much inflamed and it would be covered with sores. But when the doctor put him on a "strict temperance diet" his stomach would heal.

This is the way many things are known about digestion.

Alice Farnsworth

tube which hangs in
the abdomen.

Use of



Sixth Year of Study.

Digestion.

Digestion is described as changing the food to prepare it for the blood.

The organs of digestion are the mouth, oesophagus, stomach and intestines. These form the food canal extending from the mouth to the intestines. The food canal is about thirty feet long. It is a double. Along the canal are glandular glands which secrete different juices that qualify for digestion.

The first organ which helps digest the food is the mouth. The front, sharp teeth cut off bits of food and the back teeth grind it. Under the tongue and under the ears are glands called the salivary glands which turn out a fluid called saliva which, mixing with the food moistens it and changes the starch in the food

tongue. The change is found by testing a common cracker which is composed mostly of starch, by chewing a long time it gradually gets sweeter as all the starch is changed to sugar.

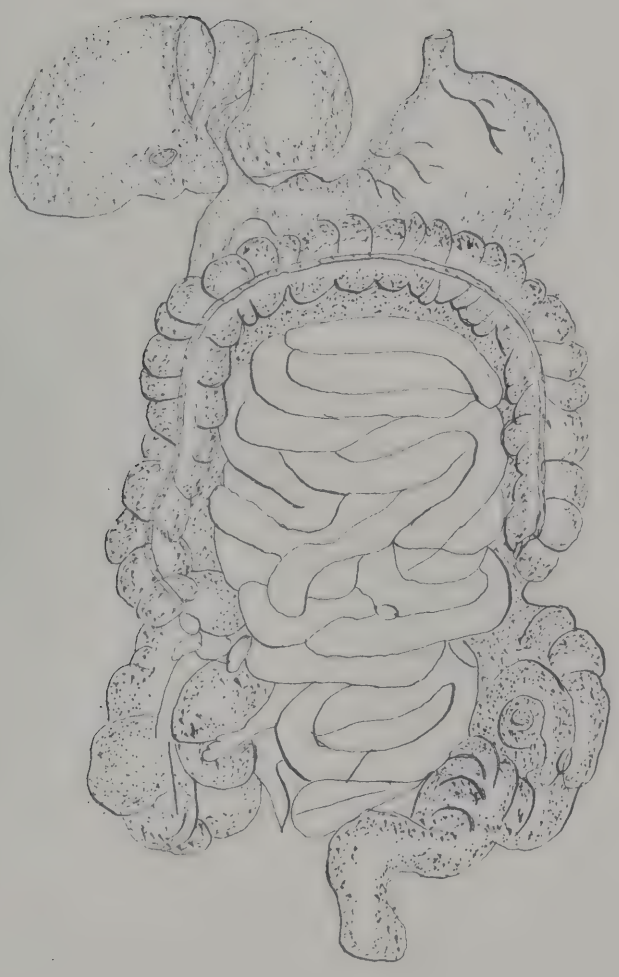
The oesophagus is the passage between the mouth and the stomach. The oesophagus is composed of many - shaped muscles which contract and expand thus slowly forcing the food through into the stomach.

The stomach is a soft fleshy bag somewhat lying on and on the left side of the abdomen. The stomach is pear shaped and in an adult will hold about a quart. It consists of three coats. The outside coat is strong and holds the others. The middle one is made of muscles which give the stomach a curious kind motion that helps to digest the food. The inner coat is covered with tiny glands that secrete

it also contains glands which pour out a fluid called gastric juice. This fluid is mostly water although it also contains an acid and a odorous liquid called pepsin. The gastric juice mixes with the food and changes it into a substance called chyme. The chyme then passes into the intestines.

The intestines are a long tube which is coiled together in order to make up for its great length. In the intestines the food is mixed with a fluid from the liver called bile which digests the fatty parts.

The liver is a gland near the intestines. The pancreas is a gland on the right side which pours out a juice called the pancreatic juice. There is also a gland in the intestines which sends out a juice called the intestinal juice that mixes with the food that is not yet digested and digests it.



Most of the poisonous and starchy foods are sucked up through the lining of the stomach and intestines. The nerves of the intestines send out impulses something like an light on the nerves. Through these nerves the ch[illegible] is absorbed into the blood and is then passed to all parts of the body to aid in its nourishment. This process is called absorption.

Alcohol is very injurious. It separates the pepsin from the gastric juice and deprives it of its pepsin cannot digest the food. It also causes the lining of the stomach to get inflamed. When it reaches the bowels slowly filters through the delicate tissue and surrounds the liver with a useless amount of fat to cause it to shrink and harden preventing a natural flow of bile. When the liver is in this condition it cannot

Tobacco is very injurious to digestion as it exhausts the salivary glands by the ~~dis~~ disagreable habit of spitting.

Alex St. Martin was shot through the stomach. The wound healed leaving a hole in his stomach through which the process of digestion could be observed.

Dr. Beaumont looked into his stomach every day and kept a diary of what he saw. After St. Martin had been drinking the lining of his stomach was inflamed and covered with red spots from which drops of thick clotty blood came out. The man greatly helped the study of digestion.

Harold D. Darling.

Sixth Week of Study.

Questions.

Digestion of the food
without the food goes
through the digestive organs
at for the blood.

Passages of digestive
are: mouth, oesophagus,
stomach, and intestines.
Other organs are called
the food canal. In a
grown up person the
food canal is about
feet long. Glands, that
secrete juices, are found
glands, large gland, pancreas
a gland that helps to digest
the food.

That the food goes into
the blood vessels after it is

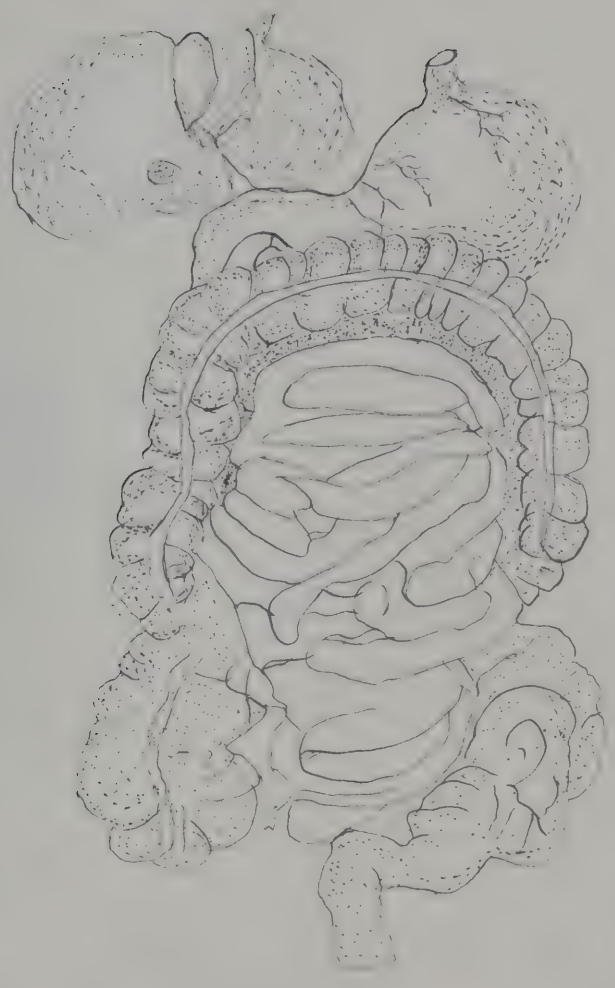
cut by the gland and
glands by the back teeth.
The mouth is by the soft
part of the tongue. The
closed by sugar. There are
six salivary glands, two are
under the ears, two under the
tongue and, two on the
side of the neck.

The oesophagus is a
long tube reaching from
the mouth to the stomach.
There are of muscle fibre
muscles which are contracted
from the pharynx to the
stomach.

The stomach is a soft,
baggy bag. The walls of
it are stretched. There are
openings, one called the

food passes into the stomach the other where the food passes into the intestines. The gastric juice helps to digest the food but it will not digest starchy foods. After it has been through this process it is called chyme. Then it passes into the intestines.

The intestines are about one inch in diameter. The small intestine is joined to the large intestine by a valve. The large intestine is long and has a middle of the abdomen. This leads to a small bag at the end



Sixth Week of Study

Digestion.

Digestion is the changing of the food to make it ready to mix with the blood.

The organs of digestion are the mouth, oesophagus, stomach, and intestines. All of these taken together are called the food canal.

Along this canal are glands which secrete digestive juices which help to digest the food.

The food is taken into the mouth where it is first acted upon by the digestive juices.

It is cut, bitten and torn and then pushed into small pieces called a bolus.

comes in the mouth
saliva under the tongue
which changes the starch
into sugar if you eat a
cracker it first turns to
paste by saliva but
after chewing it awhile
it becomes sweeter.

The esophagus is a tube
leading from the mouth
to the stomach. The 2 kinds
muscular tubes are the
way down which contract
and push the food into
the stomach. The walls
of the esophagus while
the food is going through
work in such a way that
the food cannot get back
into the mouth.

The stomach is a sac

muscles that shaped
our taste which our food
passes when it leaves the
esophagus. As soon as
the food reaches the stom-
ach it begins to work. A
great many tiny glands
pour gastric juice into
the stomach which with
the churning like motion
finally digests the food. The
stomach has three coats;
the outer coat is tough, the
center is muscles, and the
inner coat is a soft and
smooth lining which con-
tains the nerves and blood
vessels.

The stomach has two
openings one to let the food
in and the other to let it

out into the intestines.
Then we hold ourselves
from eating for a long
while that the food cannot
come in the stomach until
the work is finished and
if the food is eaten
before the time of the
stomach into the intestines
When the food is ready to
leave the stomach it is a
gray fluid called chyme
It takes about three hours
for the stomach to finish
its work

The intestines are about
twenty ft long and when
it joins the stomach it is
about one inch in diameter
Then the intestines is so
small a space they have

to be doubled a number of times. The substance receive this salt received and of certain depositions.

The liver is a large organ at the right of the stomach, it is called a ductless gland and works. The function is a clean liver of the stomach which passes out a sweet juice which does the same work as it is. The substance juice of gall and the other works that are not digested. When the digested food is cast on the blood it is a watery fluid called chyle.

The substance is not soluble but fat is little

[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]
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the bed and a depression
is formed

The functional effect
of this is direction
that it makes the saliva
and without this the food
cannot be digested properly.

Alexis St. Martin had his
side torn open by a shot,
when the wound healed it
left an opening through
which could be seen the
process of digestion. If
St. Martin had been drunk
the stomach would be
inflamed and sore would
start out on the lining, but
when stopped the stomach
would begin to look natural
again.

Walter A. Simpson.

Sixth Lesson of Chapter II.

Digestion.

Digestion is the changing of the food by the various organs & juices of the body.

The organs of digestion are the mouth, esophagus, stomach and intestines. Food taken to nature as soon as the food canal. The food canal is a tube about thirty feet long. The various glands that take their juices from the blood are all along this canal. The juices in these glands each have a certain kind of food to digest.

The first change takes place in the mouth. The teeth are used in grinding the food and at the same time the juice in the salivary glands is mixed with the food. Change

at the soft moist matter. The first step in the changing of the food to sugar takes place in the mouth. A good proof of this is when we put a cracker into the mouth it is nearly tasteless but when we chew it a while it becomes sweet.

The oesophagus is the organ that carries the food from the mouth to the stomach. The food does not pass directly through the oesophagus but is forced down by strong shaped muscles which contract.

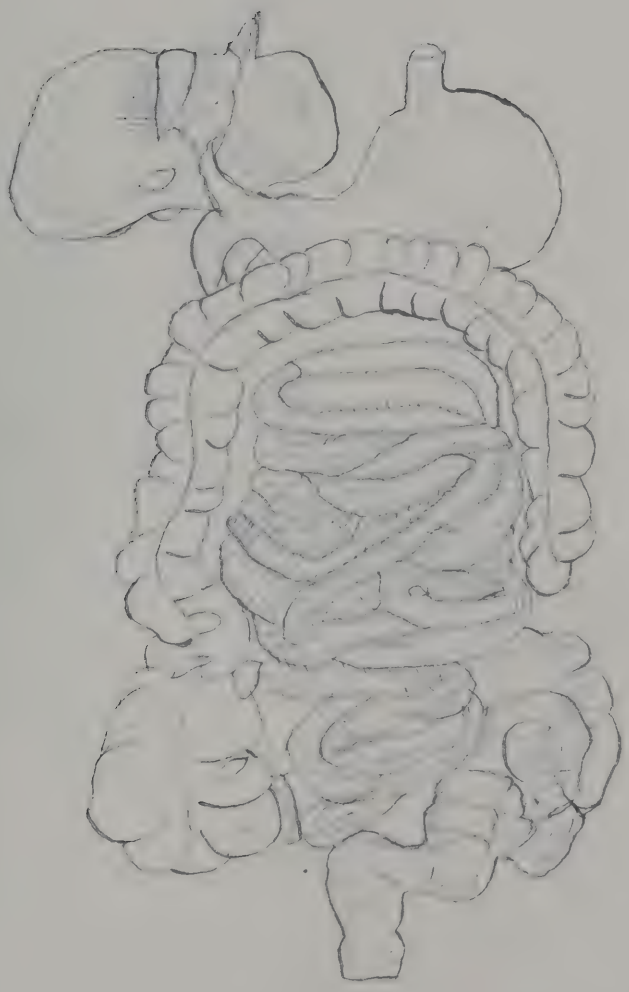
The stomach is a strong muscular pear shaped bag. It has three coats the inner a mucous membrane, the middle is made of muscles, the outer is a soft moist membrane. There are two openings one to let the food in the other leads into the intestines.

When the food is in the stomach the little glands let out their gastric juice to digest part of the meat. The greater part of this juice is water with the hydrochloric acid and pepsin. When the stomach's work is over it leaves the food in a state called chyme. Part of this is taken in to the blood the other part that is not digested passes into the intestines.

The intestine is a long tube about twenty feet long and about an inch wide. It is so long it has to be coiled up back and forth. It is all digestive as in the stomach while the larger one or colon goes around it and leads out of the body. The liver is the largest organ in the body it weighs about five pounds. The gall bladder in the

liver contains a greenish colored liquid called bile, which digests the hard and fatty foods. The pancreatic juice is in the pancreas and digests the starchy food that the saliva has not digested. The intestinal juice digests all foods that still remain undigested. The muscles of the intestines move the food along. After the food is fully digested the part that is good is taken into the blood and the other part is cast out.

Absorption is the taking of the food into the blood. It occurs in the stomach and intestines. The greater part of the albuminous and fatty foods is taken up in the stomach. The food in the intestines when ready to be taken up is called chyle. The lining of the intestines is like bibe and is covered



slowly along it is taken right into the blood just by drops.

When alcohol goes into the stomach and mixes with the gastric juice it makes the pepsin sink to the bottom. The food cannot be digested until new juice is thrown out. This extra work soon exhausts the glands and the person has a disease. When the alcohol is carried into the liver it hardens the tender tissues and shrinks it. Sometimes it causes the liver to become swollen, because it produces a growth of fat, which does not do the work as well as the proper substances. A liver in such a state cannot take bile properly from the blood so the food is not digested as it ought to be.

When a person chews tobacco a great amount of the poison goes

through the lining of the mouth and the food passes it to the stomach, where it hinders the work of digestion. Under use of the salve by having to shift for them.

A man by the name of Alexis St. Martin had his side torn open by a ball, but the wound healed leaving a hole. A doctor, who could watch the work of digestion, made many discoveries. When Alexis would drink anything, it settled in it large blotches from which came clotted blood would form on the lining of his stomach. When he did not drink any liquor for a while the stomach would go back to a healthy condition.

Yours truly

Sixth Year of Study.

Digestion.

Digestion is the process of making ready the food for the "growth and repair of the body."

The organs of digestion are the mouth, oesophagus, stomach and intestines. These taken together are called the food canal which extends about thirty feet.

The mouth contains the teeth. The front teeth cut and the back teeth grind and chew the food. The salivary glands are near the ears and at the root of the tongue. These contain saliva which comes

from the blood. This fluid changes starch to sugar. This can be proved, because, when we first bread or crackers into our mouth, we can hardly taste them, but when the saliva mixes with them they taste sweeter.

After the food leaves the mouth it passes into the esophagus, which is made of small muscular rings. As the food goes down these muscles expand and contract letting the food pass into the stomach.

The stomach is a muscular bag which holds about two quarts of liquid.

It has three coats, the outer skin is a strong one which protects it. The one under this is muscular skin and the inside one is a very thin mucous membrane like the lips or inside of mouth. The stomach has two openings one for the food to go in from the esophagus and the other to go into the intestines. It is mixed with the gastric juice and the pepsin in this juice digests the albuminous food. The food is changed to chyme in the stomach by a churning motion.

The intestines are about twenty feet long and are coiled round and round

each other and are about one inch in diameter. The chyme passes through the intestines and mixes with the bile from the liver and the pancreatic juice and the intestinal juice, which is supposed to digest all the food that has not been thoroughly digested.

The liver is the largest organ in the body. It weighs five pounds and secretes a dark green bitter liquid called bile.

Food is taken into the blood by adoption. The food that is easily digested is passed into the blood in the stomach. The chyle is taken up by the lac-

fails in the intestines then into the blood.

Alcohol separates the pepsin from the gastric juice causing it to sink to the bottom of the stomach and the food does not digest properly. Alcohol inflames the inside of the stomach and ulcers may be found. It affects the liver causing it to grow fat then to shrink and of course, causing it to sour and dyspepsy. The bile cannot be secreted and so does not help the food to digest.

Tobacco exhausts the salivary glands increasing and wastes the saliva in spitting. Some of the tobacco

gun through the membrane of the mouth into the blood.

Alexis St. Martin a Canadian was shot in the stomach in such a way the doctors could see the process of digestion. They gave him alcoholic drinks and found that it made his blood thin and his stomach full of sores.

Robert A. Hardy.

Dental Use of Water.

Digestion.

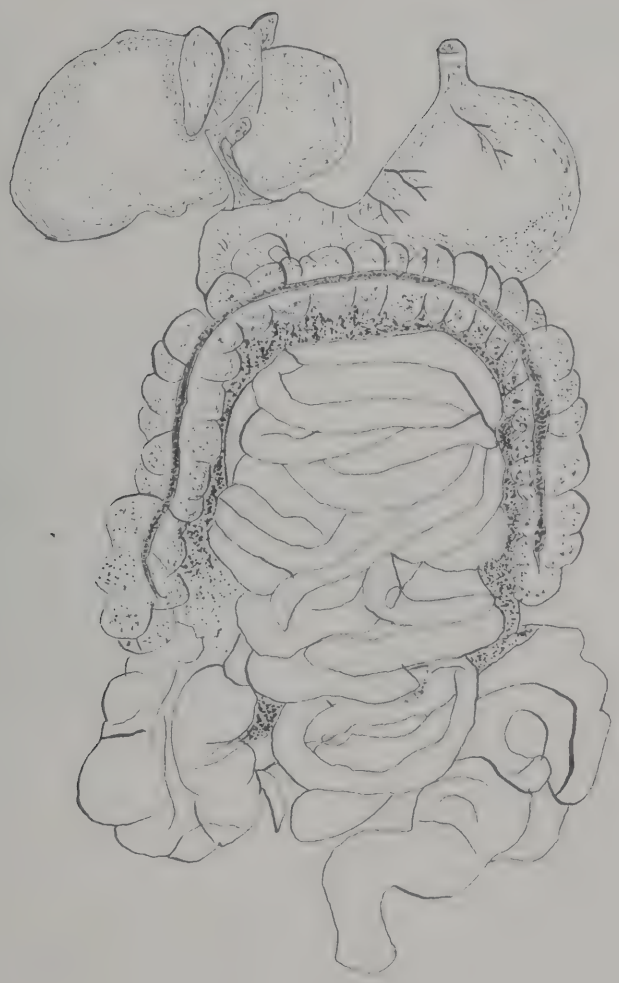
Digestion is the process
which the food has to go through
before it is ready to go into the
blood.

The organs of digestion are the
mouth, esophagus, stomach, and intes-
tines.

The mouth contains the teeth
which grind the food and the
saliva which is a liquid that helps
you the food to digest.

If the food is not ground well
when first it comes into the mouth
it should

That the food is mixed with
the saliva through the esophagus
or tube which connects the
mouth with the stomach
the food then goes into the stomach.



under the jaw.

The œsophagus is a tube connecting the mouth and stomach. It is made of muscular tissue which has the power of contracting. The food we eat reaches the stomach by the œsophagus.

The stomach is a large muscular bag which holds the food. It has four coats, the outer one is like the lining of the mouth, the next is made of muscle and the third is a coat of connective tissue.

The stomach has two openings one for the food to enter and the other to pass it into the intestines.

These openings have muscles which shut when the stomach is having the food digested.

The inner walls of the ar
teries are like tripe and it is

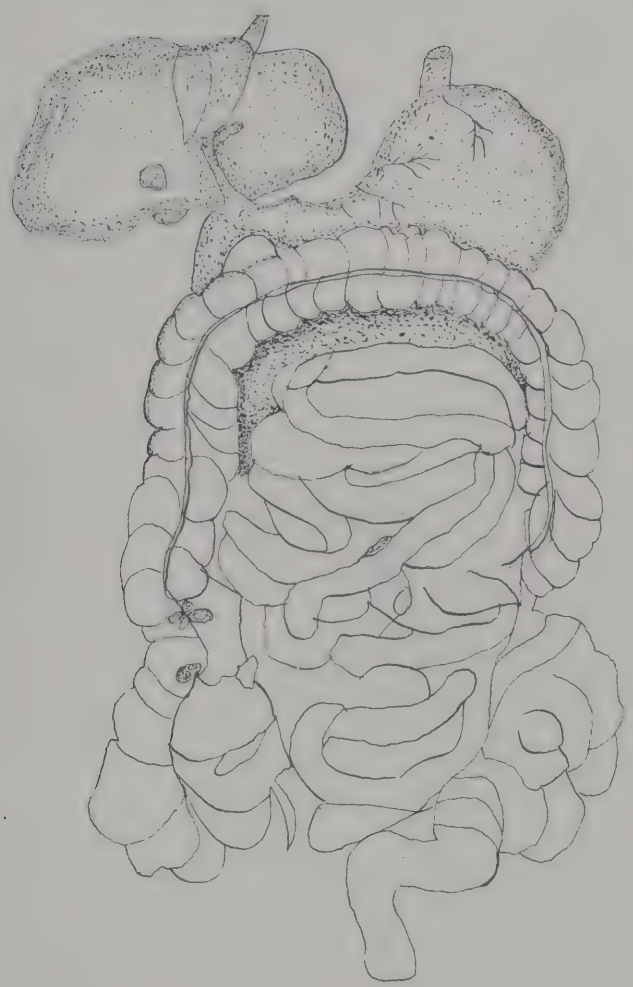
or digest the food.

The way some of these things

[illegible] lotion the stomach and
[illegible] wound healed while he
[illegible] so the digestion could resume.

[illegible] they watched the change.

[illegible] the



Sixth Year of Study.

Digestion

Digestion is the change which takes place in the food before it goes into the blood.

The organs of digestion are the mouth, esophagus, stomach and intestines. All of these organs taken together are called the food canal. The canal is nearly about thirty feet long in a grown person. There are little glands along the canal which contain juices, which do about all of the digesting. When the food goes past these glands they give out their juice.

After the food goes into the mouth it is cut up by the front teeth and then it goes back to the back teeth. There are three pairs of salivary glands, that empty their saliva

sugar. Now is the first change which takes place in the food. It is changed by eating. Saliva is mixed with the food in the mouth. When it is first put in the mouth it does not seem to have any taste but after it is chewed it has a sweet taste.

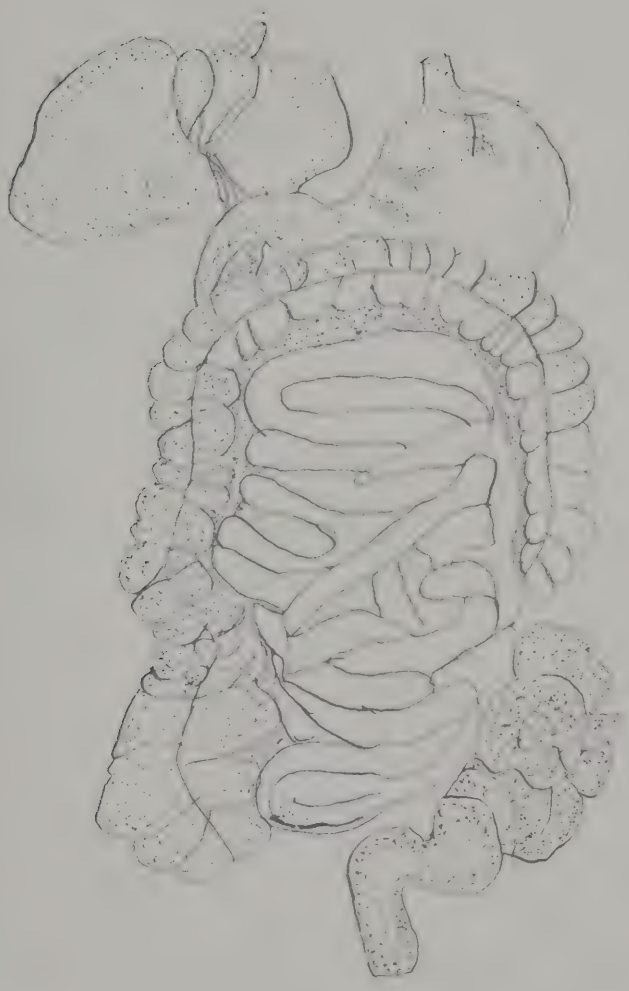
After this the food passes through the œsophagus which is a long tube extending from the mouth to the stomach. It has many strong muscles. These muscles push the food down.

The food passes into the stomach where it is mixed with the stomach juice. This juice consists of a mucus which coats the inner walls. The mucus keeps many small glands in the stomach

Branch with the fruit.

The flowers grow in small clusters at the ends of the branches. The fruit is a large berry about one inch in diameter. The skin, which is thick and tough, is of a bright red color when ripe. The pulp is soft and juicy, and has a pleasant acid taste.

The fruit is ripe in the early part of June. The juice is a favorite drink. It is also used in making jelly. The seeds are small and flat. They are easily separated from the pulp. After the fruit has got a little dry the seeds are planted. They grow in the ground. The young plants look like grass. They are set out in rows about two



the other parts. When the food is ready to go into the blood vessels it becomes absorbed and is called chyle.

Most of the absorption takes place in the walls of the stomach. The walls of the intestine have small hairs like this. If it was smooth and did not have these little fingers inside it they would not be as easy for the chyle to get into the blood. As you see this is the same way that the food that is digested in the stomach does. It goes into the intestines. This process is called absorption.

When a person drinks water it also drinks. It passes into

digestion. It takes the saliva that is necessary to digest the food from the gastric juice, and the food has to rot in the stomach until new juice comes. It dilutes the gastric and the person gets a disordered digestion. Alcohol also makes the stomach red and irritates it.

Alcohol sometimes makes the liver large by adding fat to it and sometimes makes it shrink. Both of these diseases must needs be fatal.

People that use liquor must suffer much for the sinful things.

Many of these facts and questions were found out by Dr. Beaumont who had charge of Alexis St. Martin. Experiments were

shot in the stomach so that when
he moved he saw there was an op-
ening right to the stomach and
the juices of his digestion. If
he drank any alcoholic drinks his
stomach would get inflamed and
sore would come on it. Then
his food would not digest easily.

H. Myron Potter

Sixth Year's Study.

Digestion.

Digestion is the changing of the food to make it fit to enter the blood.

The organs of digestion are the mouth, esophagus, stomach and intestines. They form what is sometimes called the food-canal because they are a passage through which the food goes down.

The food is taken into the mouth, cut by the front teeth, ground by the back teeth teeth, and is moistened with the saliva. The saliva changes the starch in the food to sugar, and so helps on the work of digestion. Then

are several salivary glands in the mouth, some under the tongue, and some below the ears. When the food enters the mouth the saliva is ready to do its duty.

The esophagus through which the foods pass to the stomach is formed of ring-shaped muscles which contract and push the food down.

The stomach is a large pear-shaped sac bag. It has three coats coats, first a strong membrane, then a coat of muscles which give the stomach its churn-like motion, lastly a thin coat which holds the nerves and blood vessels. The stomach has two openings, one where the food enters from the

esophagus, the other into the intestines. The one after the food enters the stomach so that it cannot leave until it is as fully digested as it can be in that organ.

The food is churned by the muscles and is mixed with the gastric juice which helps to make it into a mass called chyme. Some food is easier to digest than others and goes directly from the stomach into the blood.

After the food is as fully digested as it can be in the stomach it is taken to the intestines where it is mixed with the bile from the liver and juice from the pancreas.

The liver is a large gland at

the right of the stomach. The bile which it pours into the intestines is bitter and of a green color.

The pancreas is a gland back of the stomach. The juice from the pancreas is like the saliva. The intestines are in a grown person about twenty feet long, and are coiled round and round in the lower part of the body. The food stays a good while in the intestines and has plenty of time to digest. While it is in the intestines it is changed into a milky fluid called chyle. Then the good part goes to the blood. The chyle is drawn into the blood much as ink is drawn into a blotting paper, and is sent out

all over the body. This process is called absorption.

When a person chews tobacco some of its poison is swallowed, and some goes through the lining of the mouth, and so reaches the stomach, and interferes greatly with its important work. It also uses up the saliva in the mouth, which is needed so much for digestion. Many people that use tobacco have poor digestion.

When a person uses alcoholic drinks the alcohol in them causes the person in the gastric juice to sink to the bottom instead of dissolving. This hinders the glands as the gastric juice

it does can not do its work until more fat is thrown in.

Alcohol on the liver has a very bad effect. It goes slowly through all the "delicate tissues" of the liver, causing them to shrink and harden and become what is called bobnailed.

A great deal has been found out about digestion. Alexis St. Martin's stomach was torn open by a shot. When it healed it left a small hole. By glimpses through it the doctor that attended him found out great deal. When Martin had been drinking his stomach would become inflamed But when he let all alcoholic drinks all alone it would begin to heal and in a time would look all right.

Alice E. Paine.

Sixth Year of Study.

Digestion.

The change in the food, which gets it ready for the building up of the body, is called digestion.

The organs of digestion are the mouth, esophagus, stomach, and intestines.

The mouth contains the teeth, saliva, and tongue, that aid in the digestion of our food.

The teeth cut, and grind the food, and the saliva, which comes from salivary glands, under the tongue and jaws, mixes with it and changes the starch to sugar.

You can proove this by chewing a piece of dry cracker and noticing how sweet it grows.

The food goes from the

mouth into the esophagus.

The esophagus is a part of the food canal, and is made up of ring shaped muscles, which contract one after the other, and let the food pass through. If you should notice a horse drinking, as he swallows you can see the ring shaped muscles contract.

The stomach is a strong muscular bag in the left side of the abdomen.

It is pear-shaped and can hold about two quarts of food.

The stomach has two openings, one where the food passes from the esophagus into the stomach, and the other, where the food passes from the stomach, into the intestines.

The food in the stomach is moved, or churned, from one side to the other, and the gastric juice, which contains pepsin mixes with it, and digests the albuminous food.

The easily digested foods soak through the walls of the stomach, and go directly into the blood.

But the food that is not so easily digested, has to go into the intestines, before it can go into the blood.

When the stomach has finished its work, the food is called chyme.

The intestines are a long tube, and are curled around in the abdomen.

The liver is one of the most important glands in the

body.

It sends a bitter green juice in to the intestines called the bile, which helps to digest the fatty foods.

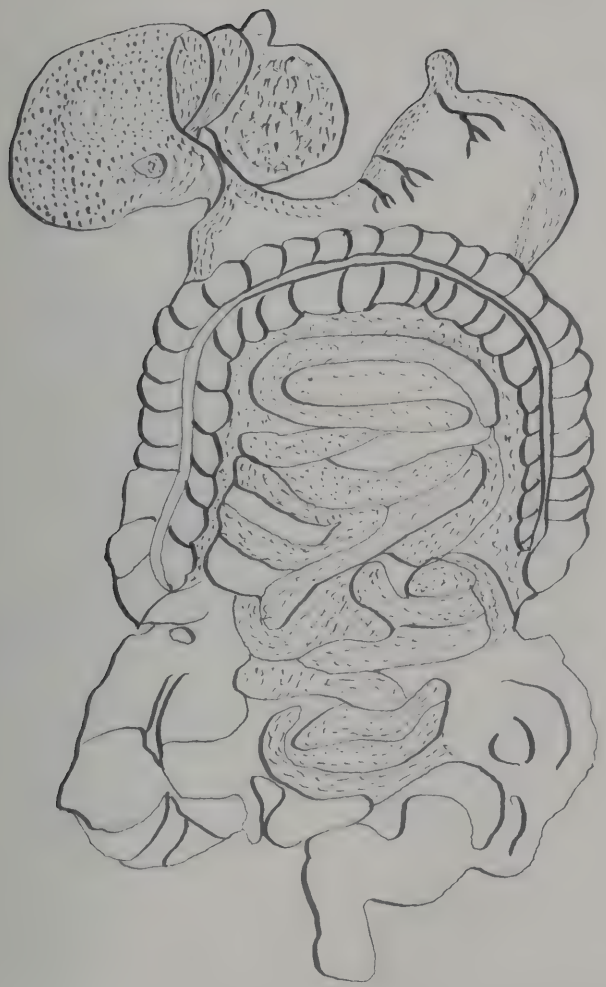
The pancreas is a gland back of the stomach, and it gives a fluid like saliva to the intestines.

The albuminous, and starchy foods, have been taken into the blood, through the lining of the stomach.

The walls of the intestines are rough, and have tubes on them called lacteals, which take the blood up.

The food in the stomach is called chyle.

Alcohol inflames the lining of the stomach.



Alcohol causes the liver to increase in size, and in this way it causes a great deal of useless fat, which hinders the work of this organ.

In other cases the liver will shrink and become hard, and this is sometimes called "hob-nail," in either cases it will use up the fluid in the liver.

Alcohol causes the pepsin, in the gastric juice, to sink to the bottom of the stomach, and the gastric juice, having been separated, cannot do its work.

Tobacco causes sores on the stomach.

People who chew tobacco, swallow a large part of the juice, and some of this goes into the blood directly.

When alcohol reaches the stomach, it interferes with its important work.

We have learned some of these facts from Alexis St. Martin. Alexis St. Martin was shot in his side, and by moving a thin skin, the doctor could look into his stomach, and in this way a great number of wonderful things have been learned.

Dr. Beaumont had charge of him, and he looked into his stomach every day.

The doctor had a book, and every change that took place he wrote down.

Mr. Martin did not complain when his stomach was inflamed.

The doctor gave him alcohol and watched the change that took place.

His stomach was sore when he had been drinking alcohol.

But it would heal up when he left of drinking.

The doctor gave him different kinds of food and watched the changes that took place.

Bertha Robinson.

Sixth Year of Study

Digestion

Digestion is the change which takes place in our food while it is being prepared to enter the blood.

The different parts of digestion are:- the mouth, esophagus, stomach and intestines.

There are many glands which secrete juices along the canal through which the food passes. These juices aid in digesting the food. The mouth has one pair of salivary glands. The teeth grind up the food and make it ready to swallow. Our tongue moves the food in the mouth so that it can be swallowed. The food which comes from

glands under the root of the tongue. Saliva moistens the food which it is being chewed and renders it soft and turns a great deal of the starch in the food to sugar. Thiscombe proved when anyone eats a cracker or piece of dry bread at first it tastes dry, but after a while mixing with the saliva it becomes sweet.

The oesophagus is the tube which leads from the mouth to the stomach. It is made of little muscular rings. When one lets the food these rings can not one after the other pushing the food down

The stomach is a large pear shaped bag about half

nearly two pints. It has three coats. The outer coat is muscular and smooth. The second is formed of muscular fibres, while the third and inner is made up of mucous membrane like the lining of the mouth. The inner coat of the stomach contains the glands so soon as the food enters the stomach a liquid oozes called the gastric juice.

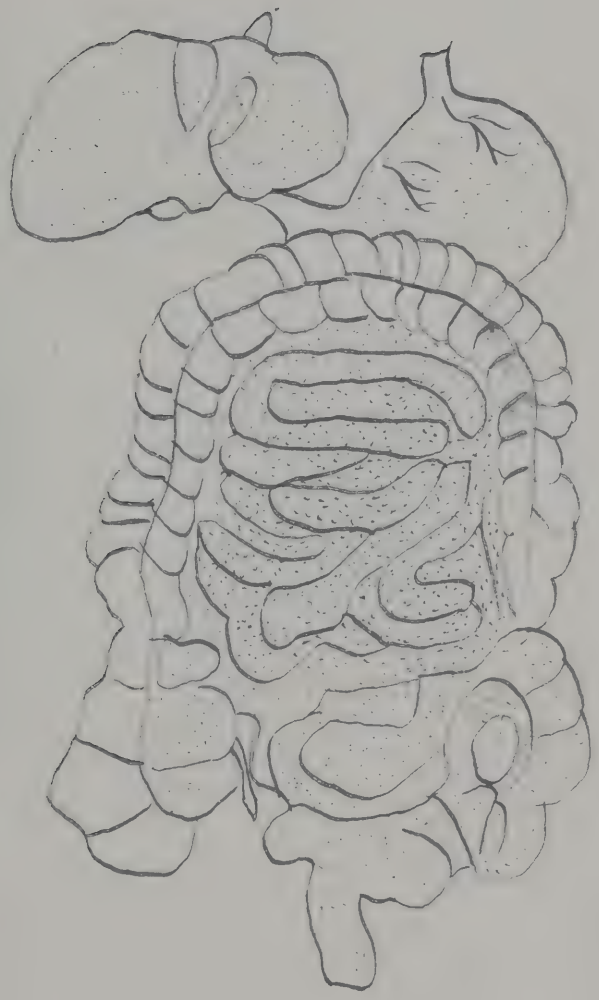
This juice comes from glands situated in the lining of the stomach. The food mixes with the juice and is then churned backwards & forwards. The gastric juice contains an important substance called pepsin which changes the albuminous of our food.

After the stomach has finished its work, the mass which is left

is called chyme and is of a pasty
consistency. The chyme leaves the
stomach & enters the intestines. The in-
testines consist of a long tube
soft and easy coiled up in a proper
small space.

The liver which is a large gland
at one side of the side of the stomach
pours a little green bile into the
intestines. The pancreas or sweet
another large gland pours a fluid
into the intestines called the
pancreatic juice. There is also a
fluid called the intestinal juice.
All of these fluids help in the di-
gestion. The food passes slowly thro
ugh the intestines until is called
chyle. The intestines are formed
of three muscles.

After the food has been through
the intestines the parts which are



not digested passes into the intes-
and then out of the body.

When the food gets into the stom-
ach part of the strength of the stom-
ach is absorbed into the walls of the stom-
ach, and then reach and go to min-
ish the body. The chyle which is the
passes into the intestines

The inside walls of the intest-
ines are like rope and the food is
sucked through the openings by
by this. This process is called
absorption

Alcohol irritates the stomach and the gastric juice
Paralyzes the walls of the stom-
ach so that it cannot do its
work properly. When the alcohol
enters the stomach the gastric
juice immediately flows out and
and meeting with the alcohol

is secreted from the person and thus will prevent digestion of food.

Alcohol poisoning through the liver sometimes causes an excessive growth of fat & makes the blood tissues thick and harden. This then said to be hobnailed. The liver in either of these cases can not secrete bile and so can not absorb fat.

Tobacco uses up the nerve so it cannot nourish the heart and also causes ulcers on the stomach.

Arguments of these facts about question were found out by experiments and observations. Once there was a man named Alexis St Martin who had a hole in the stomach and when the wound healed it left a scar

during several days of the prevalence of skin Doctor Bracewood, under the impression of some kind and the man's stomach every thing, for a number of years and kept ordinary of what he saw. Then, now that after he'd Martin had been thinking his stomach would be reinforced and there must be cures in the morning, from which drops of thick clotty blood rejected out. But when he was set on a new paramount his stomach would resume its healthy appearance

Winfield Lawrence Rice.

Sixth Year of Study.

Digestion.

Digestion is the change which takes place from the time the food is taken into the mouth, till it reaches the blood.

The organs of digestion are the mouth, oesophagus, stomach, and the intestines.

When the food is taken into the mouth, it is chewed and mixed with the saliva.

The saliva is used to change the starch into sugar.

A proof of this can be seen by takeing a piece of dry cracker, put it into the mouth and it is tasteless, but when it is chewed and becomes soft, it is sweet.

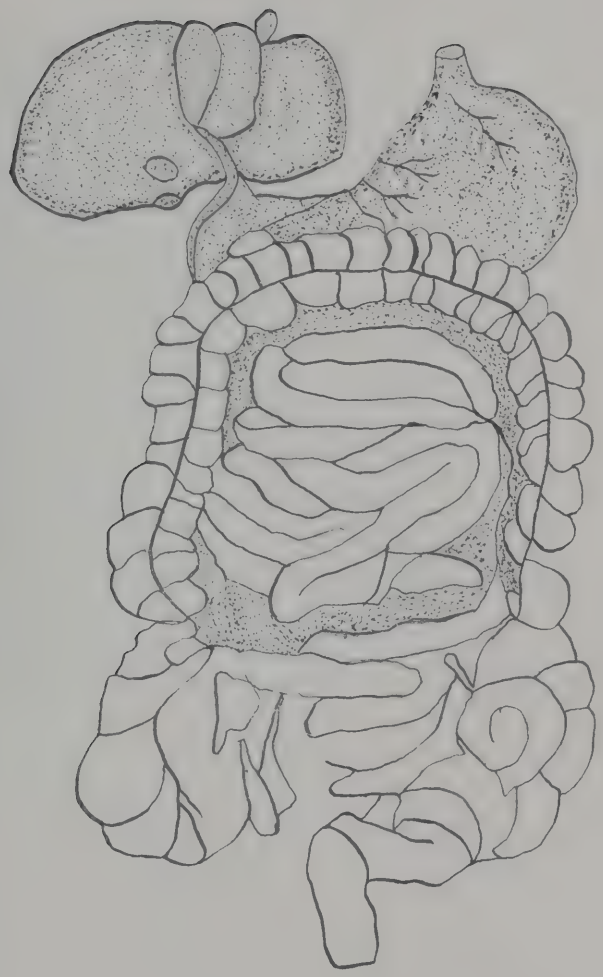
The esophagus is the organ which carries the food from the mouth to the stomach, it is a round tube, and is from ten to twelve inches long.

Inside of this tube is a lot of little muscles made into rings, placed on each side of the tube. when the food goes down it is squeezed through and softened.

The stomach is a bag, lined with a lot of little pouch, the food is carried down through the esophagus, into the stomach, where it is grounded up smaller, and is mixed with the gastric juice, which digests the albuminous food.

It is called chyme.

The intestines is a tube, about



an inch wide, and twenty feet long.

Here the food is mixed with the bile, that comes from the liver.

The part of the food that is digested is made into a milky fluid called chyle.

The blood absorbs the food after it is digested.

It is taken up by the lacteals, and sent all over the body.

Alcohol taken in large or small quantities, into the system, hinders the work of the body.

It makes sores and irritates the lining of the stomach.

The gastric juice separates from the pepsin, and causes the

pepsin to sink instead of remaining at the top.

Alcohol makes the liver weak and not able to do its work.

It enlarges the liver and in some cases shrinks it — and in either case it can not hold the bile.

Tobacco uses up the saliva, and causes the glands to be over-worked.

A person thinks he spits out all the tobacco juice, but some goes down into the stomach and injure health.

Almost always when a person uses tobacco he suffers from poor digestion.

The story of Alexis St. Martin. This man was wounded in the side

and when the wound healed, it left a small opening.

The doctor kept him at his house, and found out from him, about digestion.

The doctor experimented upon him giving him different food and drink.

He saw when Alexis drank whiskey, that the lining of his stomach, would grow red, and become inflamed, and little sores would form on it.

They learned in this way a great deal about digestion.

Charles L. Edwardes.

Sixth Year of Study.

Digestion.

Digestion is the change on the food that prepare it for the growth and repair of the body.

The organs of digestion are the mouth, esophagus, stomach and intestines. All together they are called the food canal. There are a great many glands all along the canal that help to digest the food with the juices they contain.

The food we first take into the mouth is chewed and moistened with saliva by the teeth. The front teeth are for cutting

and the back teeth for grinding.

The salivary glands are the most important things in the mouth that helps to get the food ready to be digested. They are three pairs of racemose glands. They take the water from the blood. The salivary glands are under the tongue, cardiac gland. The saliva changed starch to sugar. Teeth can be proved if you put a piece of bread in your mouth and after having chewed it awhile it will be sweet to taste.

The esophagus is a

muscular tube leading
from the mouth to the stom-
ach. There are many rings
along the esophagus that
contract so as to let the
food pass by. those at the
end keep the food from
going back into the esopha-
gus after it has entered
the stomach.

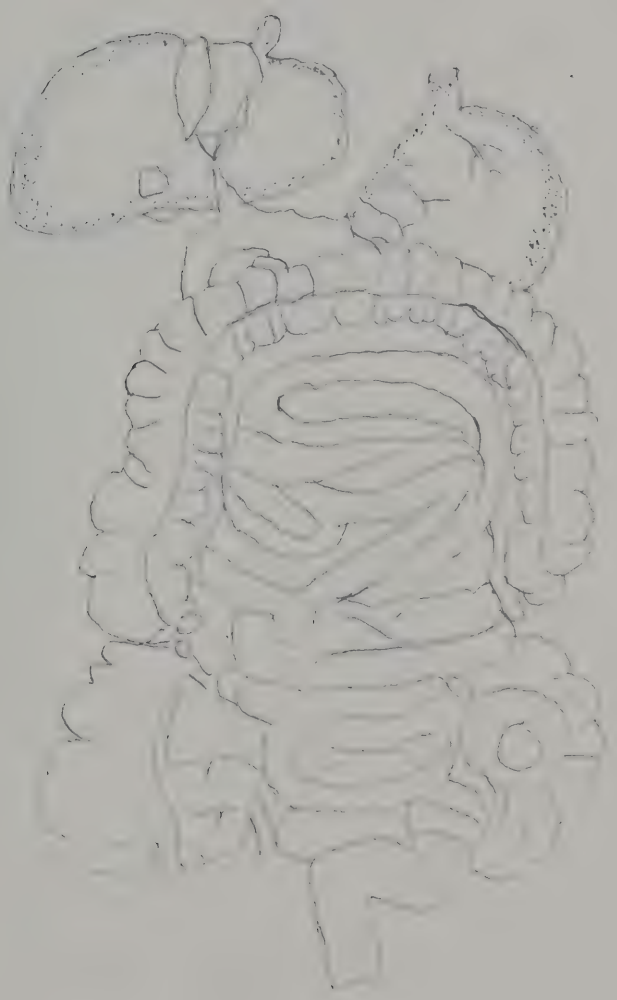
The stomach is the
place the food goes after
it has been swallowed.
It is used to hold a great
deal of food. The stomach
has two openings one
for admitting the food
and one for passing it
into the intestines. The
one nearest the heart is

called the cardiac and the other the pyloric or gate keeper.

The stomach has three coats the inner one is a mucous membrane the next a muscular coat and the outside a smooth membrane The gastric juice is in the stomach and contains a ferment and some acid which digests the albuminous food. When the food goes into the stomach it is mixed with the gastric juice which with the motions of the stomach changes it into a gray fluid called chyme.

The intestines are a

long soft tube coiled about. They are about two inches or three inches and nearly twenty feet long. The food is moved slowly along the intestines and mixed with a little juice for the liver and the juice of the pancreas. The liver is a large gland in the right of the stomach. It forms bile into the intestines to help digest the fatty foods. The nourishing part of the food is separated from the other part and is changed into a milky fluid called chyle. The food has to be first taken to the



antidotes because although
the albuminoids and
starchy foods can be di-
gested in the stomach the
fatty food cannot. Some of
the food goes through the
lining of the stomach into
the blood. The rest is taken
up by the lacteals which
are in the intestines.

Alcohol greatly hinders
the work of digestion it
makes the digestion separate
from the gastric juice and
sinks to the floor. It has to
lie in the stomach and
except the digested amidst
the glands need to make
gastric juice to digest it,
thus it leaves enzymes
the glands and the

Indigestion, Loss of Appetite
from the stomach. The
alcohol deeply seeks
beyond the tissues of the
bowels and causes them to
shrink and harden. Nervousness
comes it exerts from with
a great deal of useless
fat. If the bowels are the
condition of normal secrete
the bile. Alcohol also great
by removes the blood-ves-
sels.

Tobacco uses up a great
amount of saliva in the
food cannot be properly
digested. Although not
smoke of the tobacco is
swallowed the past blood
is greatly inflames the
stomach and harms the

work of digestion.

Some of these things have been formed and thought St. Martin whose stomach was torn open by a shot, after the wound healed a small hole was left where the doctors could look in and watch the process of digestion. Dr. Beaumont kept a diary of what he saw there. Sometimes the lining of his stomach was empty & red. Then dark clots of clotted blood came forth. The gastric juice was often covered with a great amount of ropy mucous tinged with blood. When Dr. Beaumont first knew of a transparent

Sixth Year of Study.

Digestion.

Digestion is the change in the food until it is ready to be taken into the blood.

The organs of digestion are the mouth, esphagus, stomach, and intestines.

The mouth is the first organ that the food enters, when the food is taken into the mouth it is ground up very fine and mixed with saliva.

The saliva changes the starch in the food to sugar, so that it will digest more easily.

The food then past

es through the esophagus which takes it into the stomach.

The esophagus is a tube made of ring shaped muscles.

When the food is swallowed these muscles contract and forces it down to the stomach.

The stomach is an oval or pear shaped bag in the abdomen it holds about two quarts and has three coats. The inside one is made of a thin membrane like the lining of the mouth the middle one is made of muscle and the outer a

smooth stone.

The stomach changes the food by churning it. It is mixed with the gastric juice, which is composed of water, acid, and ferment which digests the albuminous foods.

After the food has been mixed with the gastric juice it is changed to a gray substance called chyme.

When the food has turned to chyme it is slowly moved into the intestines.

The intestines are divided into two parts the large and the small

intestine.

The small intestine is a large small tube about twenty feet long. It is coiled up in the middle of the abdomen.

The large intestine is larger in diameter but is not so longe

While it is in the intestines the food is mixed with the bile from the liver.

There is another gland called the pancreas, the pancreas sends out a juice called pancreatic juice, this is like saliva and changes the starch to sugar that has not

been changed in the mouth.

The intestinal juice mixes with the chyme and dissolves all the food that is not digested. after this is done the chyme is changed to a liquid called chyle.

Albuminous and starchy foods are taken through the lining of the stomach and into the blood but the chyle is taken from the intestines.

The walls of the intestines are not smooth but are full of ridges so that the chyle can get into the blood more easily.

When alcohol is taken

into the stomach it causes the pepsin in the gastric juice to sink to the bottom.

If the pepsin is separated from the gastric juice the food will not digest and it has to stay in the stomach until the glands can put enough juice to make the food digest.

Sometimes it makes fat form around the liver, it sometimes causes the liver to shrink but in either case it cannot secrete the bile.

When a person chews tobacco he spits out most of the juice but some

passes down his throat
and it also goes
through the lining of
the mouth.

People who chew
tobacco often suffer from
poor digestion because
it uses up all the saliva.

One way that doctors
found out about these
things was by the case of
Alexis St Martin a man
whose was shot in the side.

The wound healed in
such a way that the
doctors without difficulty
could see the whole proc
ess of digestion.

One doctor who had
charge of him kept a
diary and every day

wrote above what had taken place.

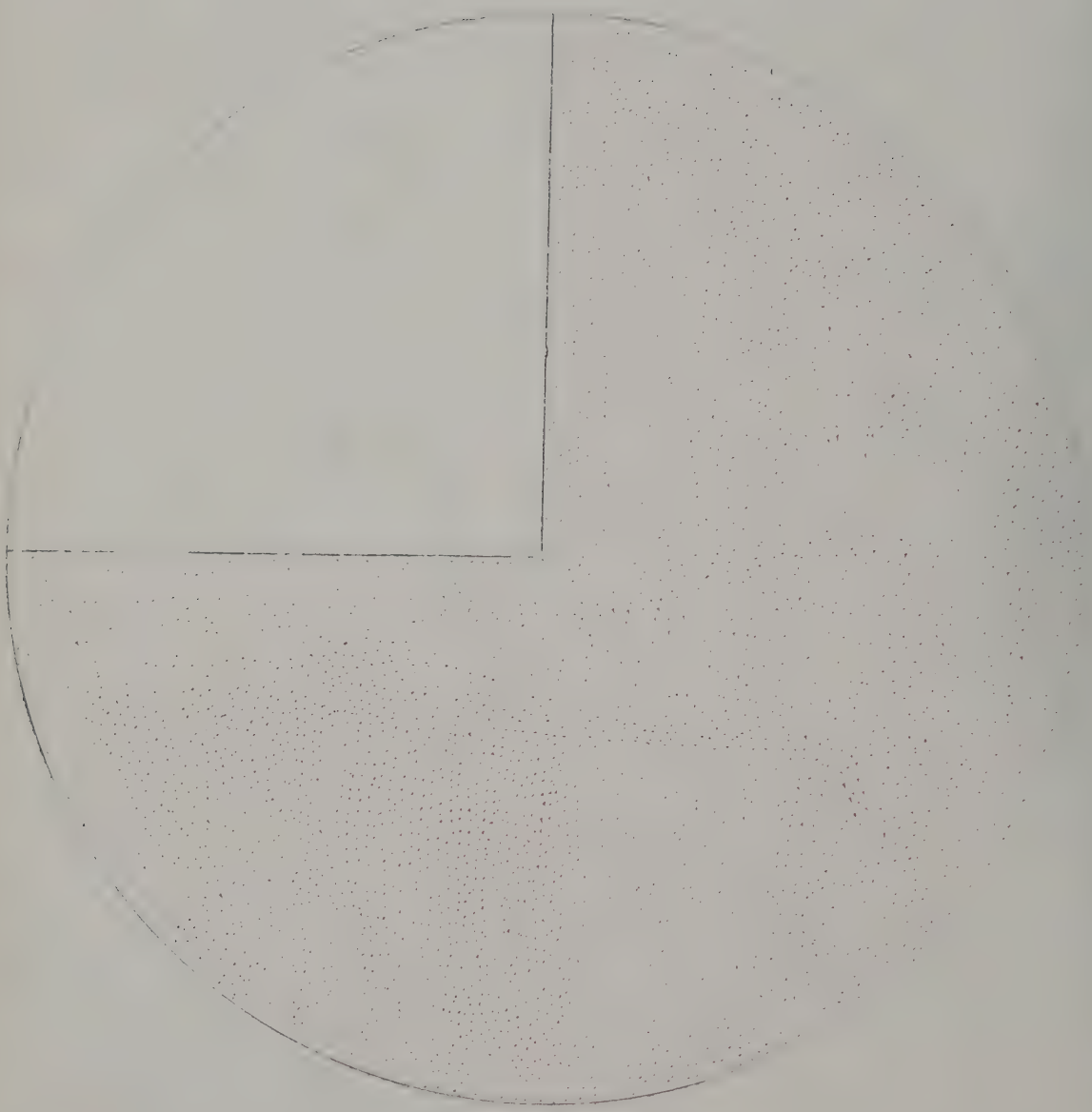
The doctor gave him St Martin liquor, which made his stomach all covered with little blotches and sores. It also inflamed the lining.

But when the doctor did not give him liquor his stomach healed.

Arthur Stockbridge.

Scientific Temperance Work

These two divisions are [illegible] subordinate to the main purpose and [illegible]



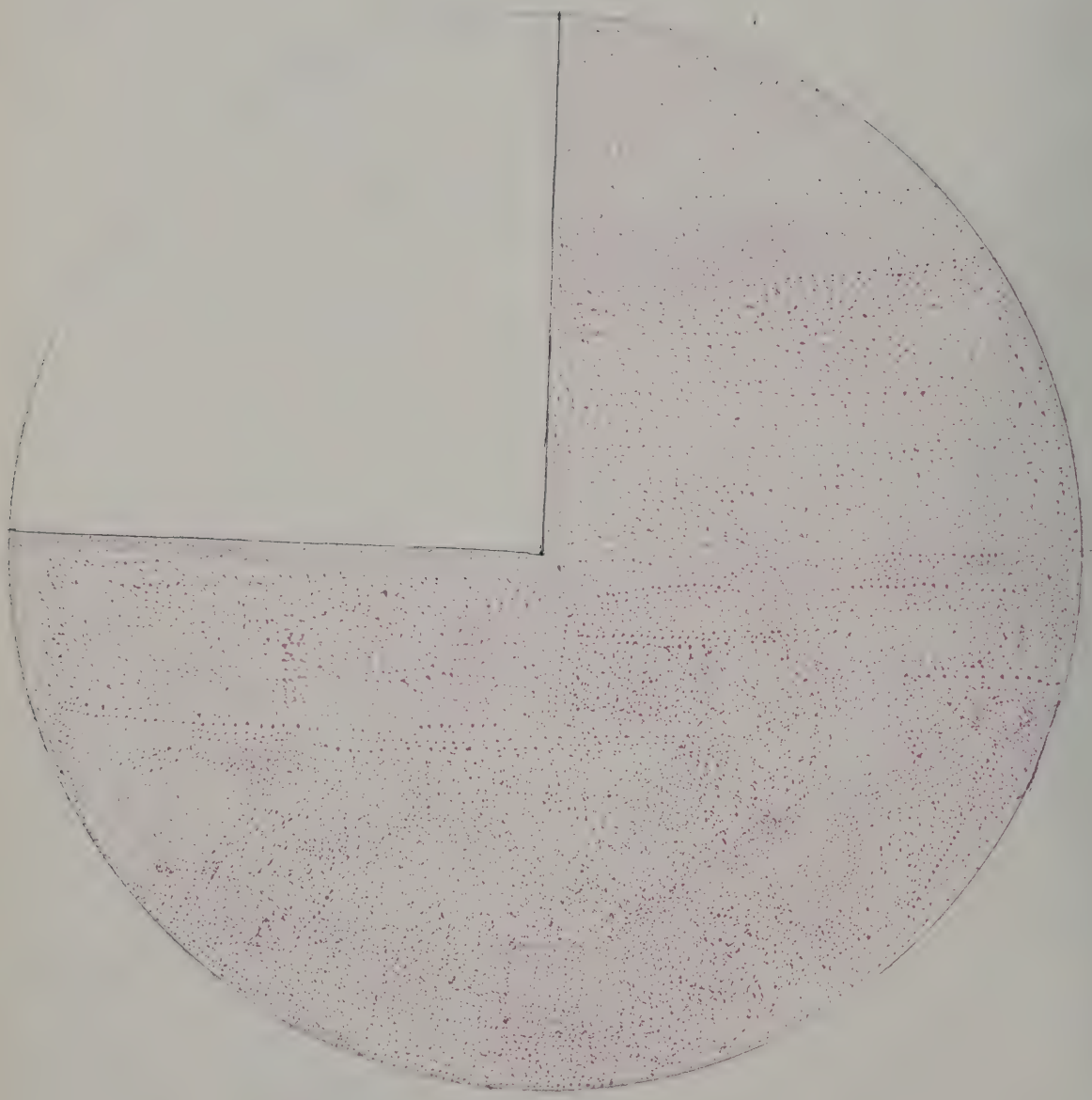
Explanation of Diagram

About three fourths of the moisture and some that are combined come from the use of alcoholic drinks. More than two fourths of the bone and gristle, which take place on the blood are thrown off by the kidneys and the remainder by the use of liquor.

All of these things because of the moisture which they contain. The blood stands at the head and body of the system.

When a man drinks the influence of liquor is to cause the blood to accumulate and lose more than its share.

Liquor also destroys the natural operations of



Explanation of Diagram.

It has been proved that three-fourths of the people in prison for murders or other vicious crimes are thereas the result of liquor drinking.

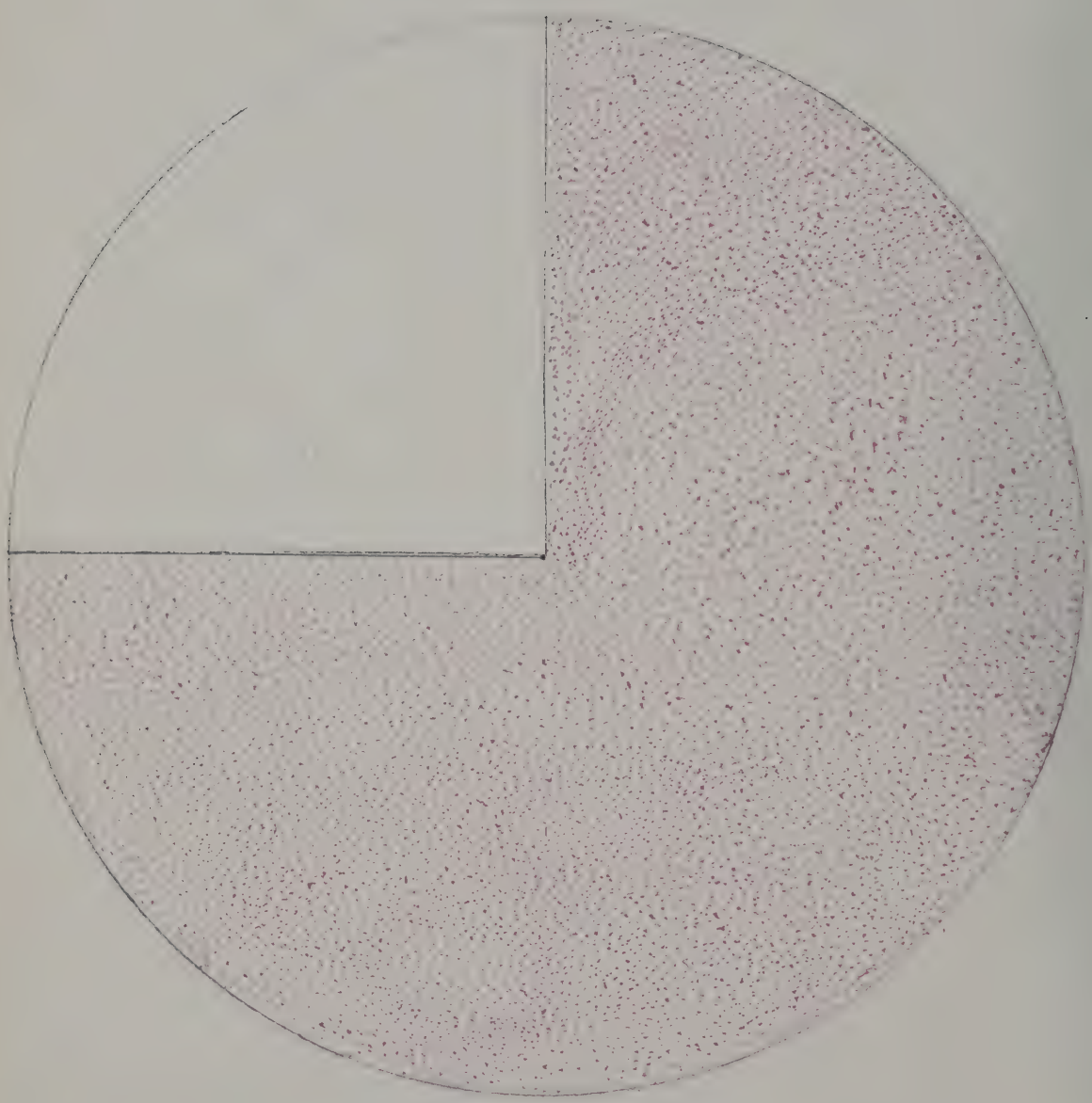
Beside this, man has proved that three-fourths of all the street fights and disturbances are caused by the same reason.

Alcohol also takes away the senses, and ruins the reasoning powers. Animals have no reason and so man, when his senses are gone, is like the brutes. Man is worse because he is supposed to have reason, and animals are not.

Alcohol sometimes destroys the love of man for his fam-

by.

When all the fine qualities of mind and heart are gone men become selfish. A good many of the crimes that are committed are done through selfishness.

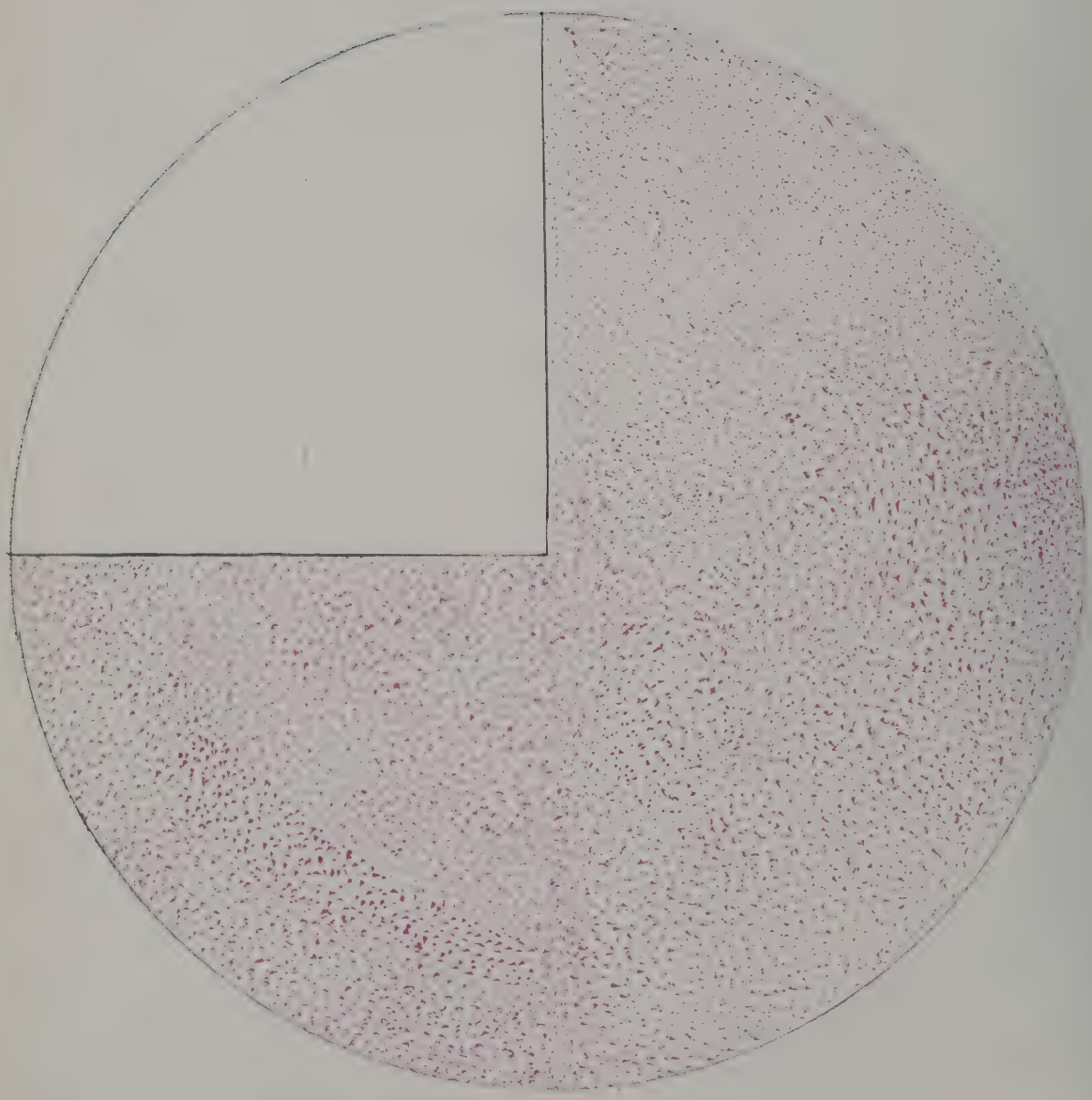


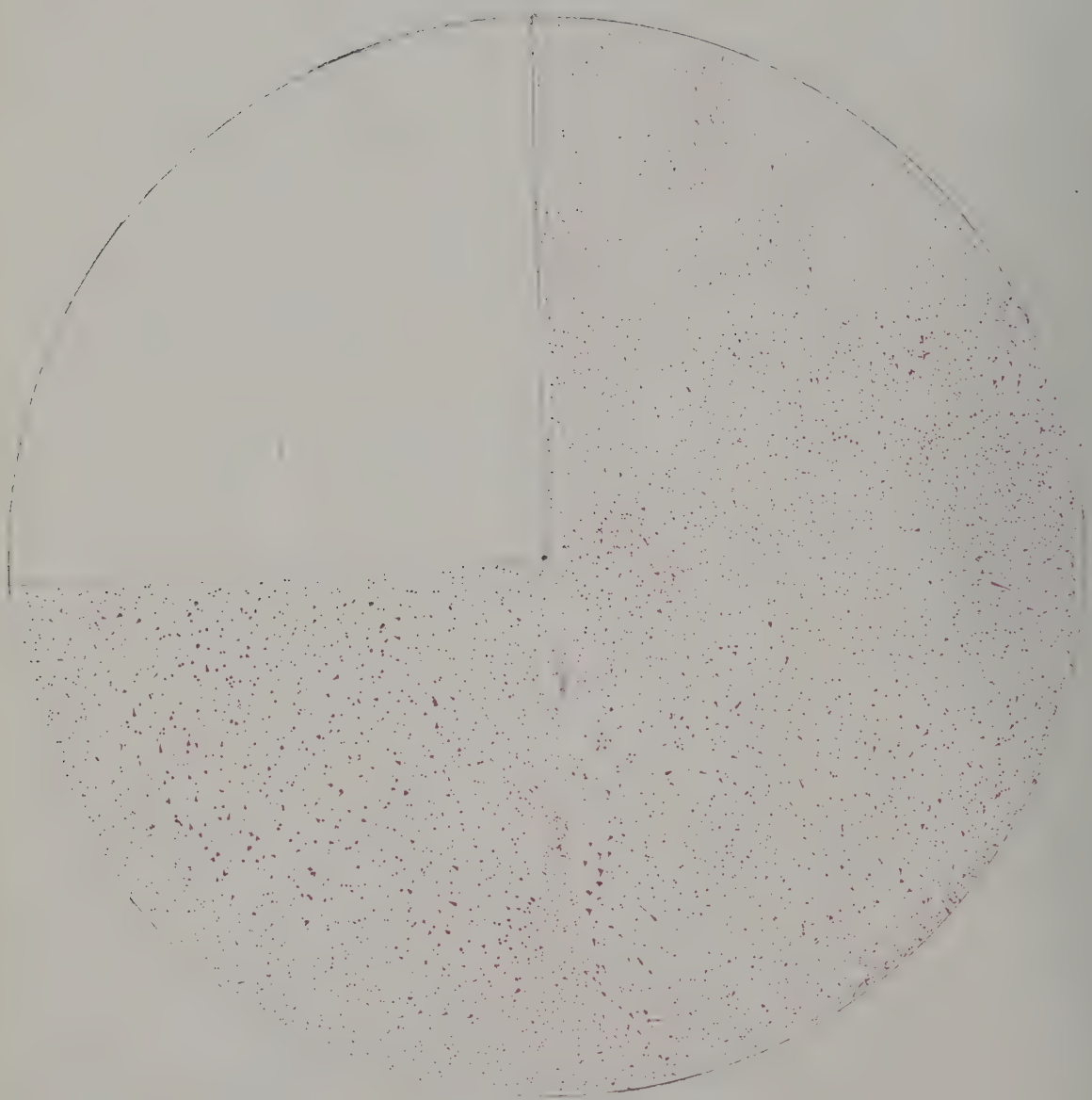
Explanation of Diagram.

It is learned from the jailor that about three fourths of all the people that are in jail are there, as the result of their drinking liquor. It has also been decided that three fourths of all the fights and quarrels that happen on the street are caused by the same reason.

Alcohol steals away the senses and destroys the reasoning powers. When this is done men become worse than beasts.

Alcohol destroys the persons natural affection. When all the fine qualities of the mind and heart are gone man becomes selfish.





Explanation of Diagram.

I would say to the young
girls and women who read this
that the use of intoxicants
cause this on account of using
alcoholic drinks.

When there is evil spirits
the people that are using the evil
ing we usually call the influence
of demons.

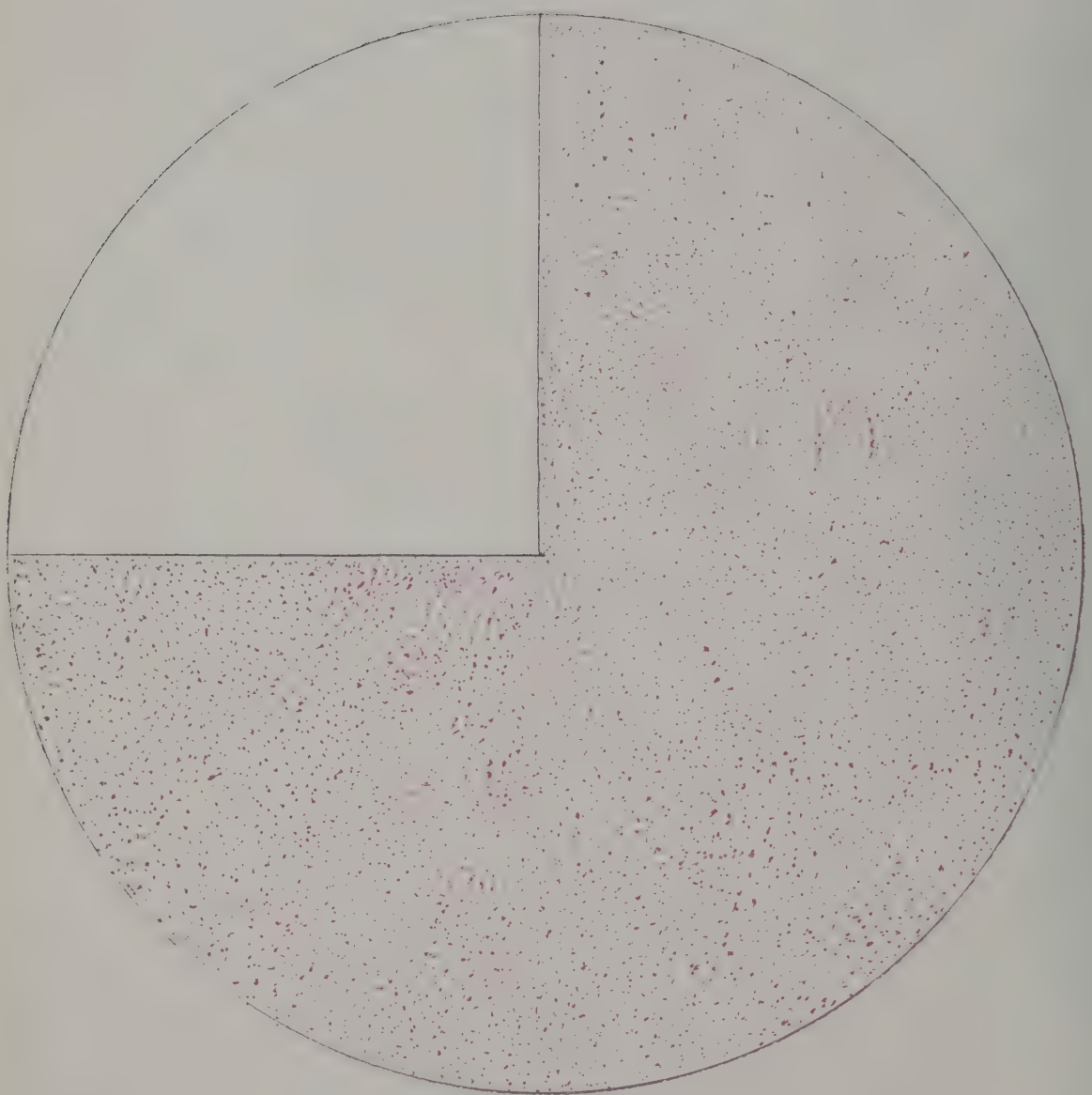
When a person drinks alcohol it
takes away his reasoning and
destroys the reasoning powers.

Then man becomes worse than
the dumb animals.

Alcohol takes away a mans natural
real affection and sometimes he
even murders his family while
under the influence of drink.

Although the better qualities
of the mind and heart are destroy

Ad by the use of Lime, water &
common salt.



Explanation of Diagram.

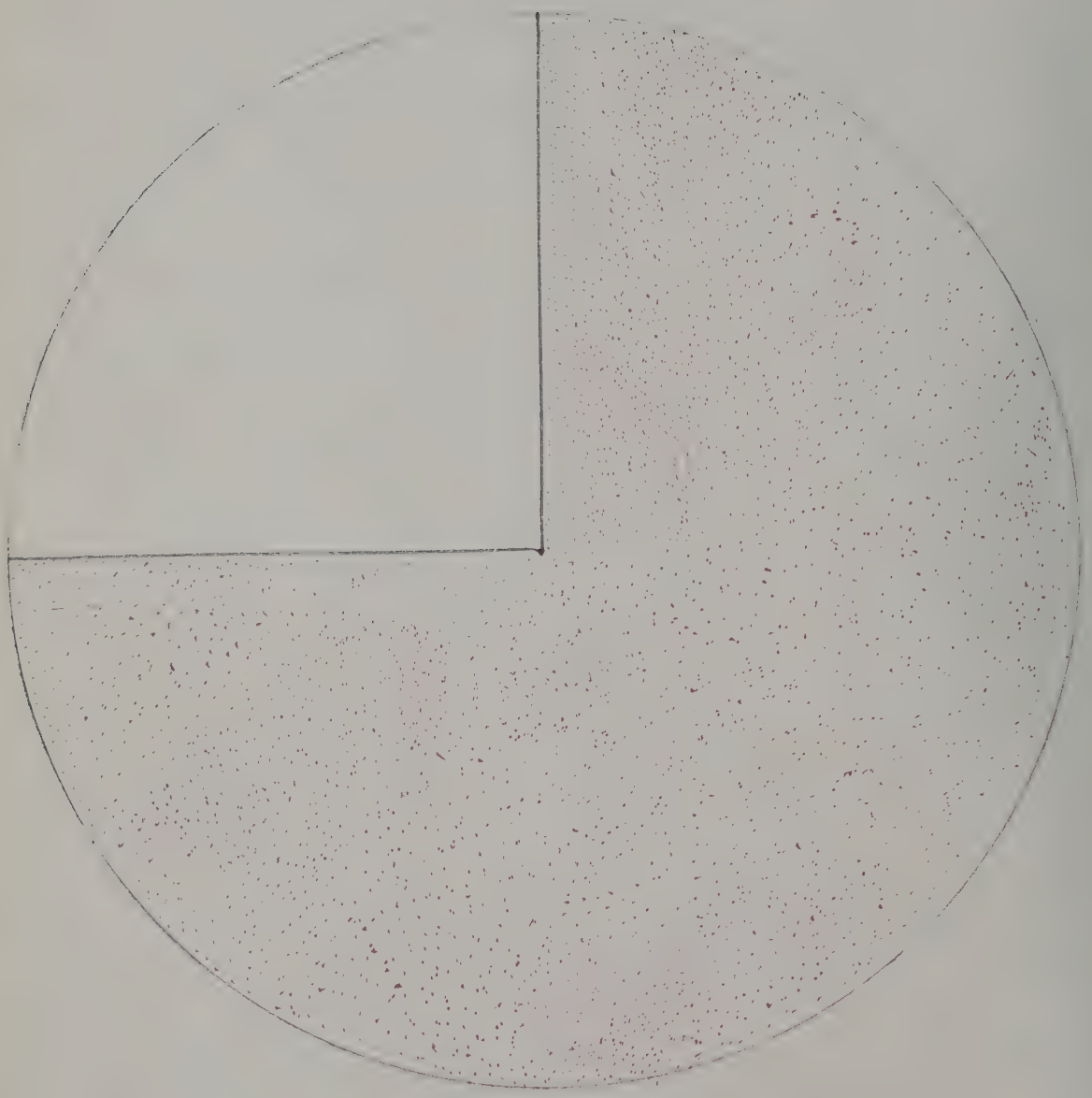
"We have learned from prison statistics, that about three fourths of all those behind the bars have been there, for murder or some other terrible crime committed under the influence of liquor. Not only this, but three fourths of all the steel pens and guards come from the same cause.

Alcohol dulls the senses and ruins the reasoning faculties. It has turned men into mad brutes.

It has been found that alcohol destroys a man's love for his wife & children & a man is under the influence of

use of liquor he drove from
home his family.

Alcohol kills the finer
qualities of heart and mind
and when a man is affect-
ed in this way he is said
to be sick.



Explanation of Imagery.

It has been proved that three fourths of all the persons in the prisons of the United States are put there because of murders and vicious crimes committed when they were under the influence of rum or other alcoholic drinks.

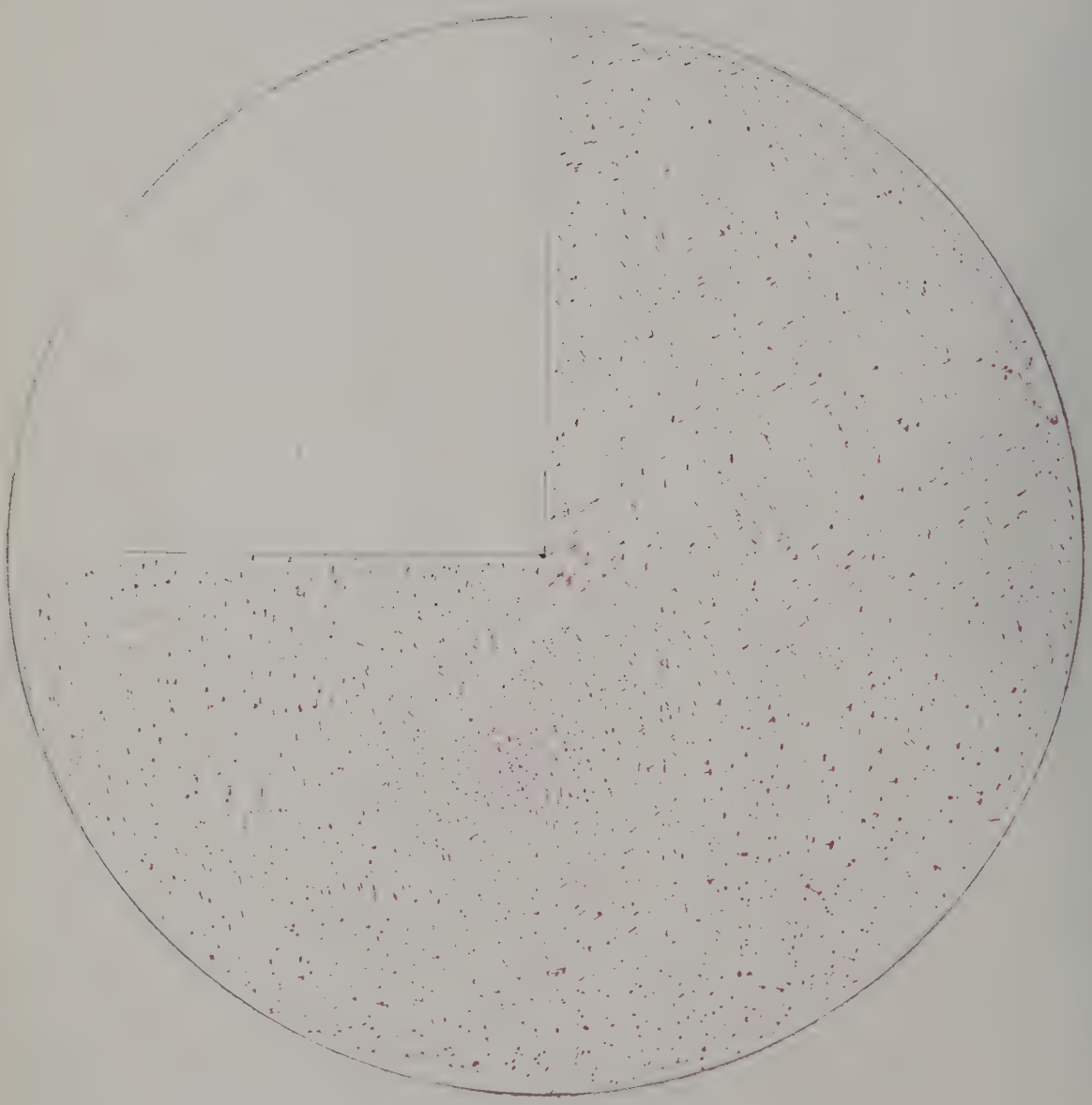
It has also been found that three fourths of the street fights and quarrels were done by men while in the same state.

The cause of it all is that alcohol steals the senses destroys the reason. When this happens man becomes as low as the animals.

Rum destroyes the natural affections, and men have been known to murder their families

on the slightest cause.

When the senses are deadened, the reason and all affections are destroyed man becomes selfish. Many a selfish act has been done which in his right mind a man would never have thought of doing.



Explanation of Diagram.

It has been found that three fourths of the people who are in prison have been put there because of drinking alcoholic liquors.

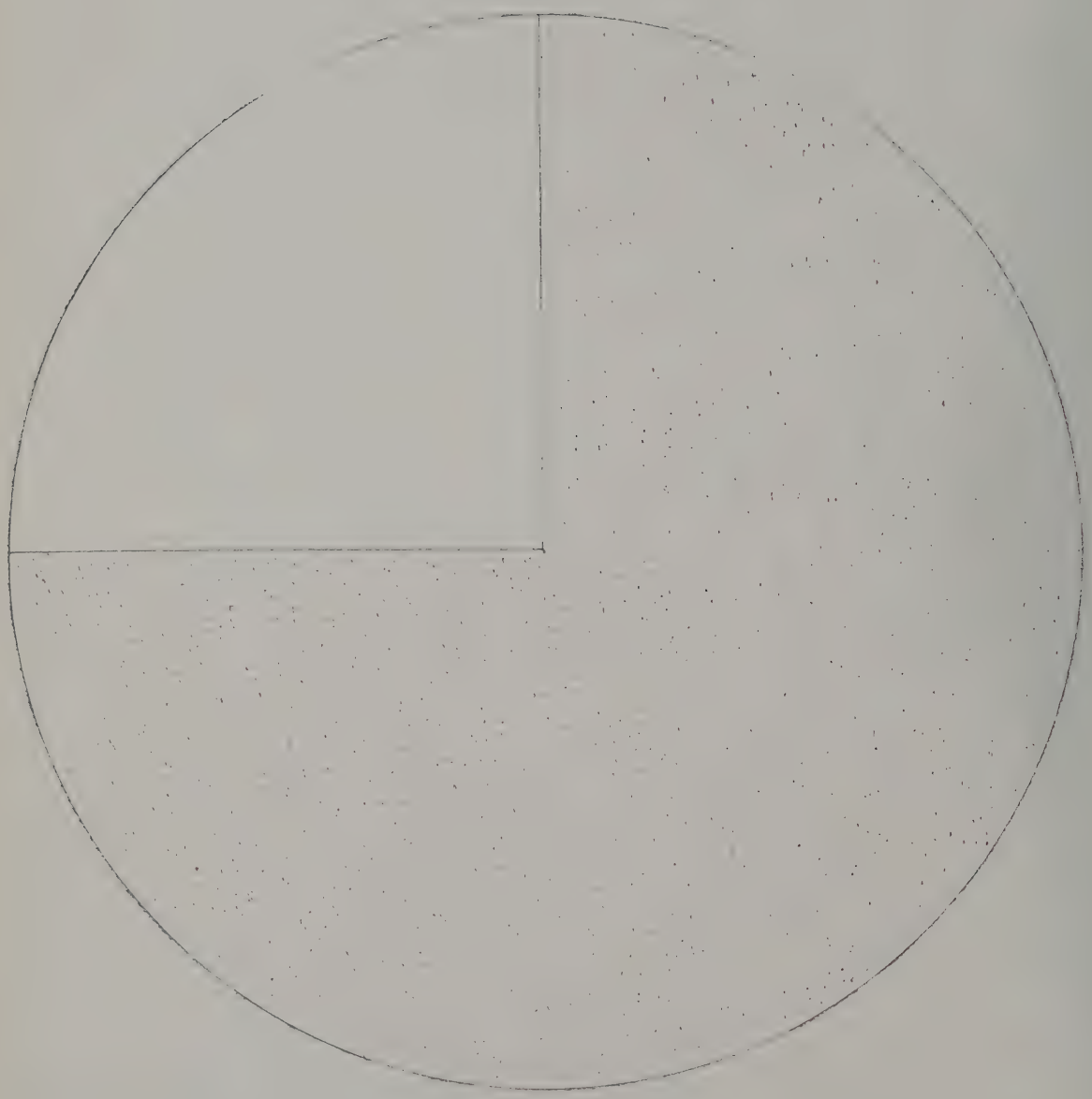
Three fourths of the quarrels and fights arise from intoxicating drinks.

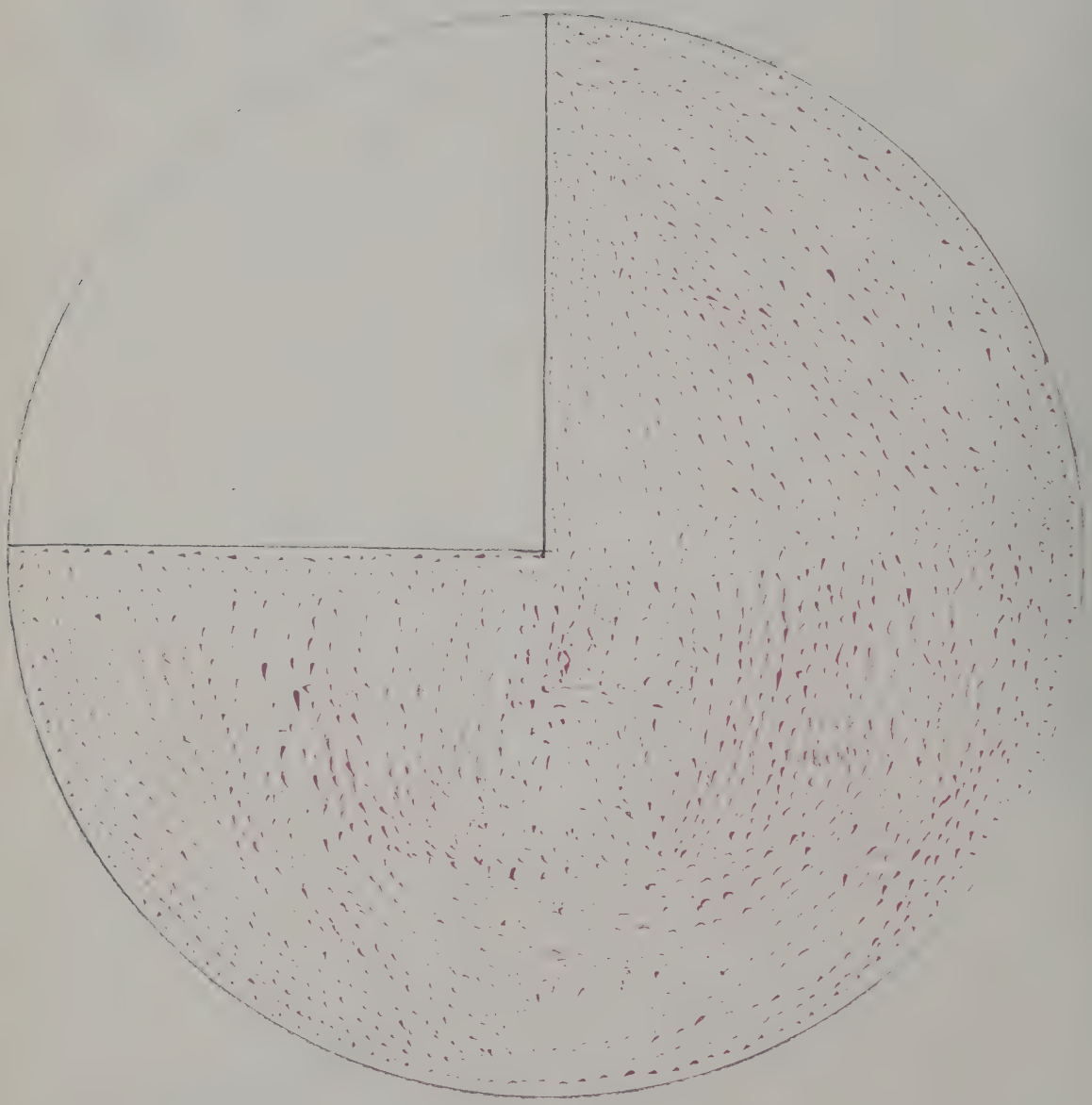
Alcohol deadens the senses and destroys reason.

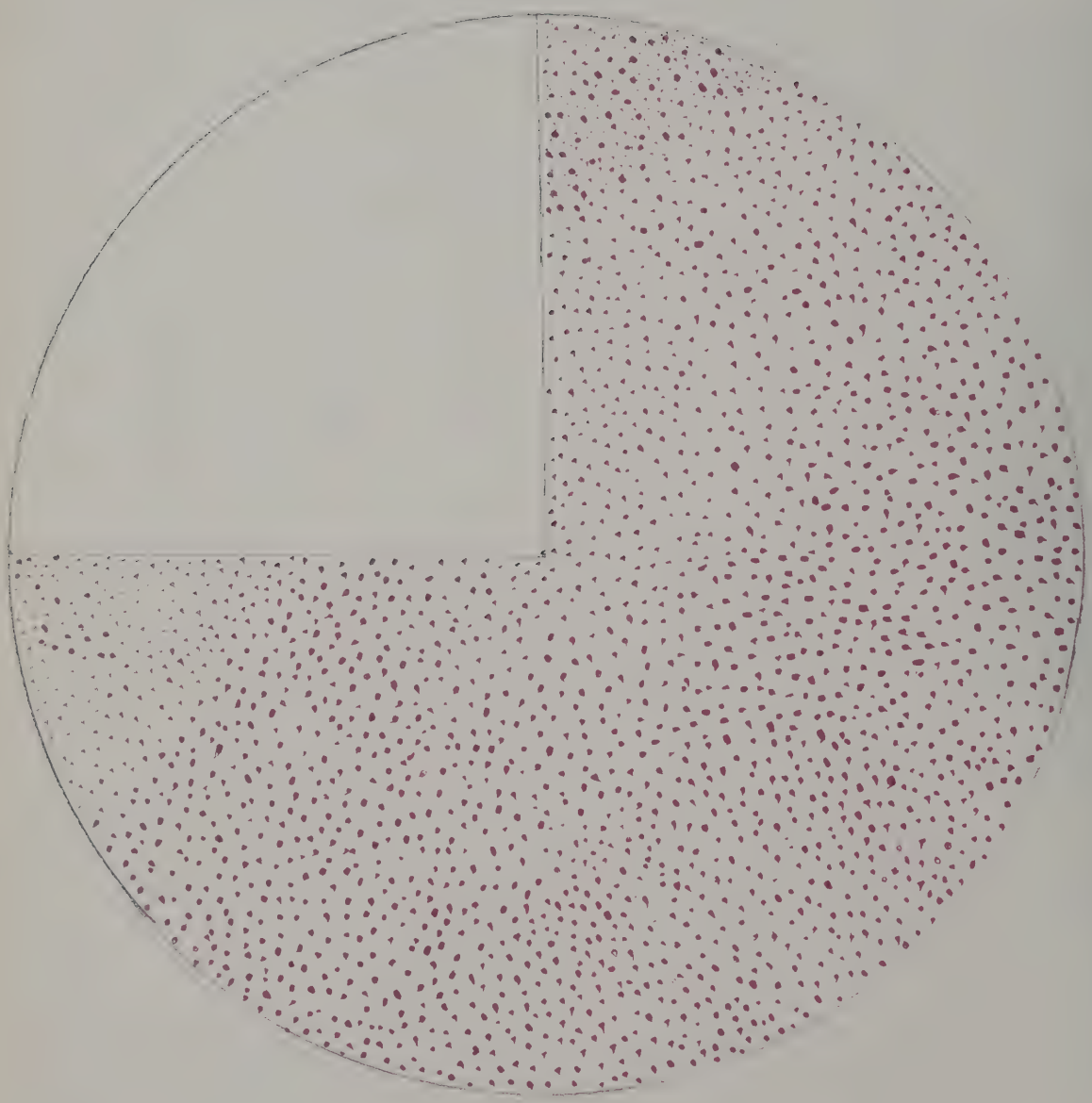
When man is intoxicated he becomes like an animal or savage.

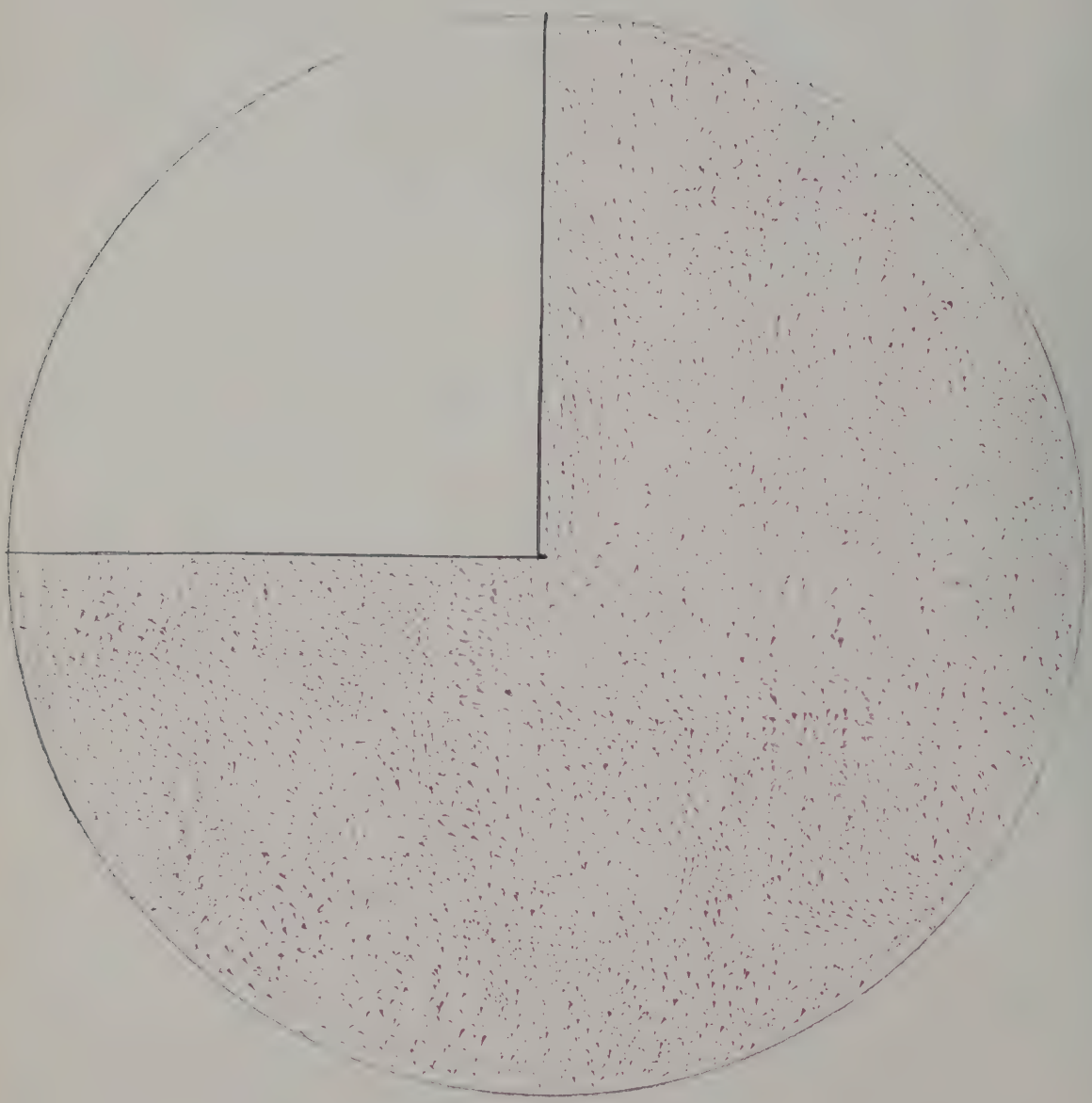
It also makes him lose natural affection.

When the finer senses are destroyed man becomes selfish and cares only for himself.







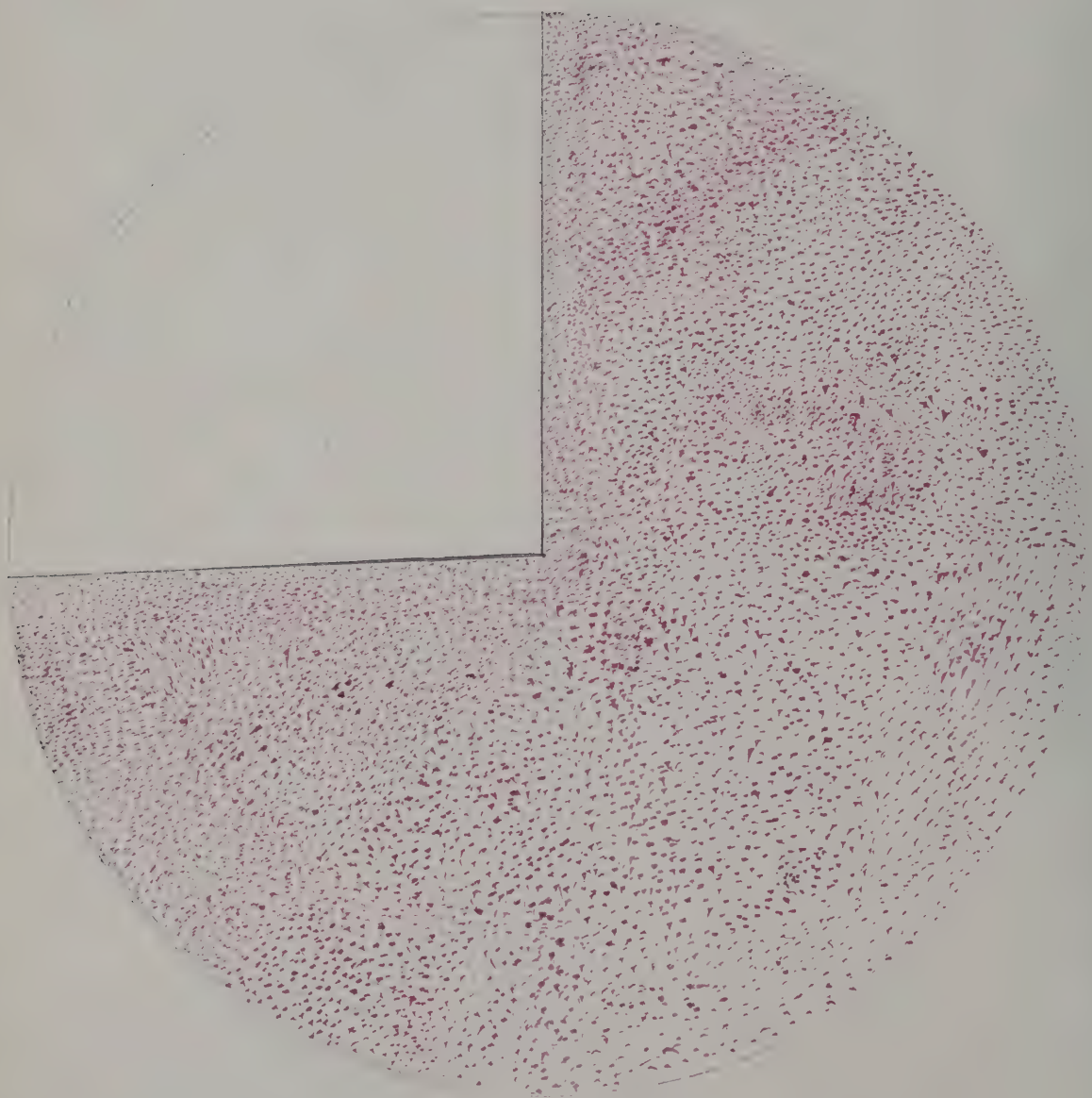


Intemperance Lesson

Study the pictures of the liquids that are sold in saloons and then name things that are found in about three fourths of the fights and street brawls caused by rum

Alcohol steals away the senses and destroys the reason. They soon become just as low as animals because they have no reasoning power.

Alcohol destroys the natural appetites, so that men sometimes rob their own families of the food, clothes and shelter which are needed to come suffer.



Explanation of Diagram.

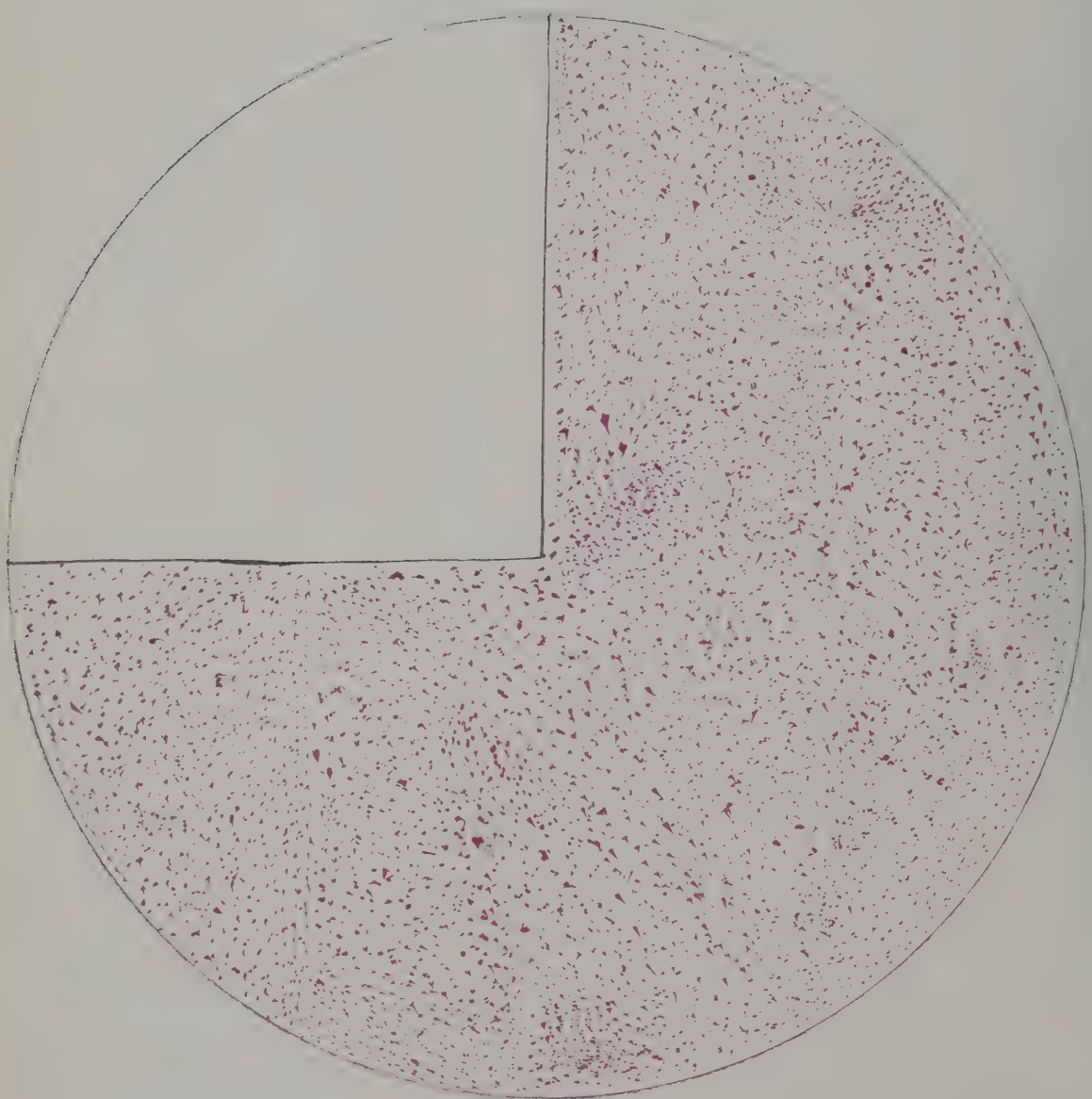
About three fourths of the people sent to prisons for terrible crimes are those, who have been influenced by alcoholic drinks.

The street fights are caused by the same reason.

Alcoholic drinks make us lose our power over our senses and then we can not reason. When any one is in this condition he is like the lowest class animals.

The affection that commonly binds man leaves him and he becomes selfish and does-

nit care what he does.

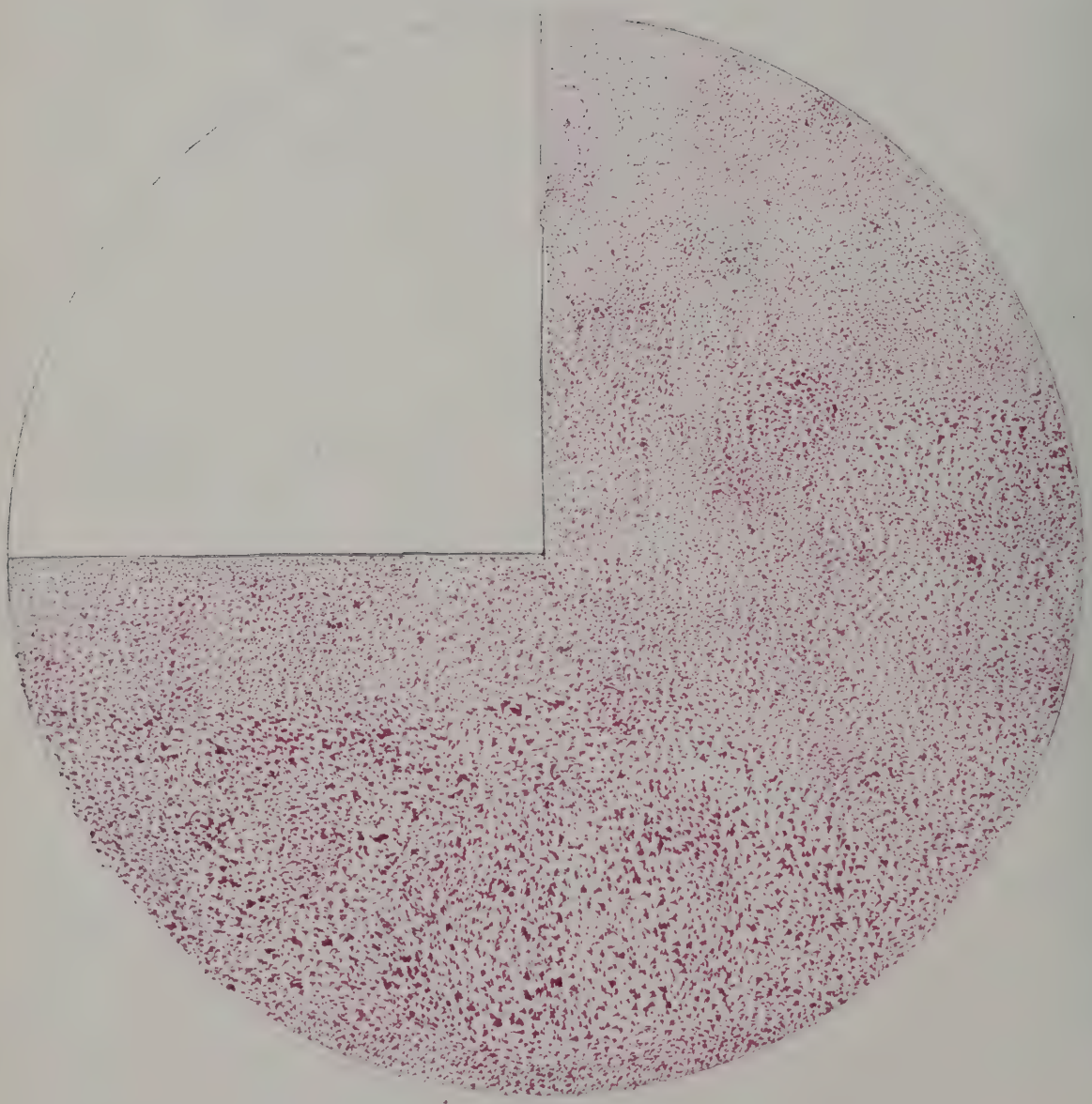


Explanation of diagram.

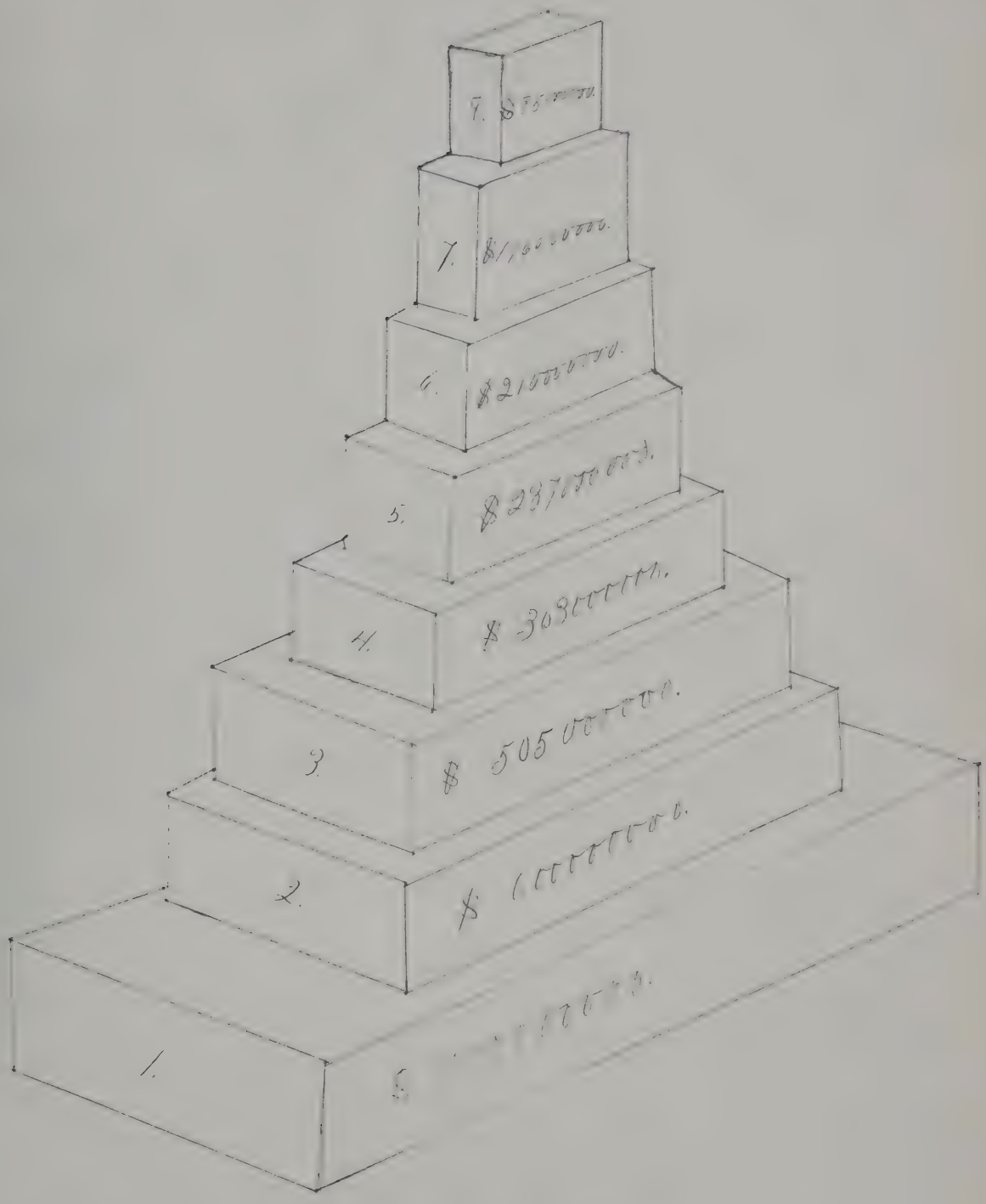
It has been found out by men that about three fourths of all of the crime is committed by people who drink alcoholic liquors.

Also two fourths of the fights and street-disturbances, which are things that many people are fined for as the results of people drinking intoxicating liquors.

The reasons that so many crimes are the results of people drinking liquors are, that alcohol takes away the power of reasoning. As the only difference between animals and men is that men have the power of reasoning and animals have not. When the reasoning power is gone from man he becomes like an animal. So all the good qualities are taken from man he is a selfish.



Explanation of figures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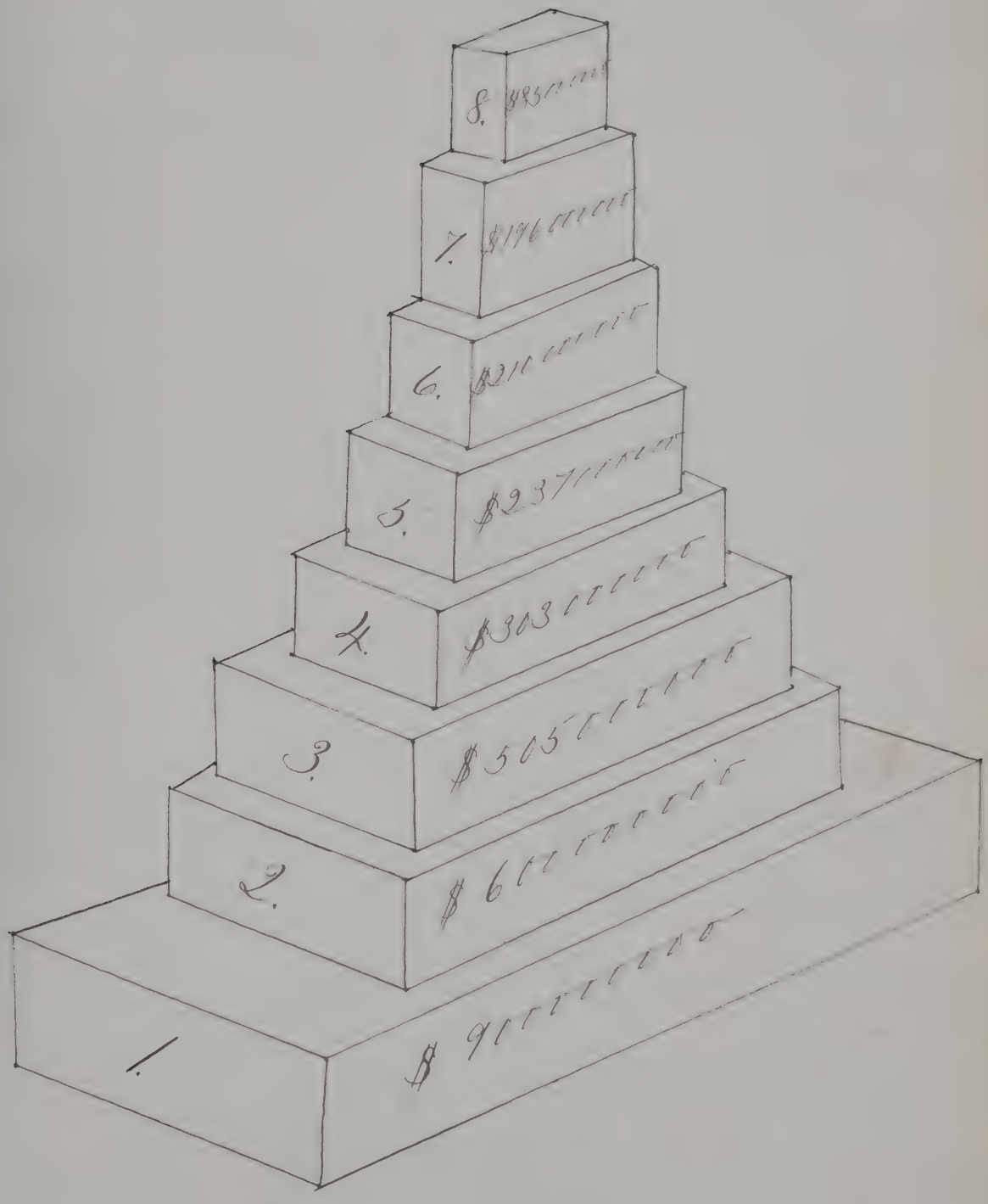
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Explanation of Diagram.

The aim of this diagram is to show the amount of money spent in one year in the United States for the necessaries of life and for tobacco and liquor.

(1) represents the amount spent for liquor; (2) for tobacco; (3) for bread; (4) for meat; (5) for woolen goods; (6) for cotton goods; (7) for boots and shoes; (8) for education.

The needful things are; bread, meat, woolen and cotton goods, boots, shoes, and education.

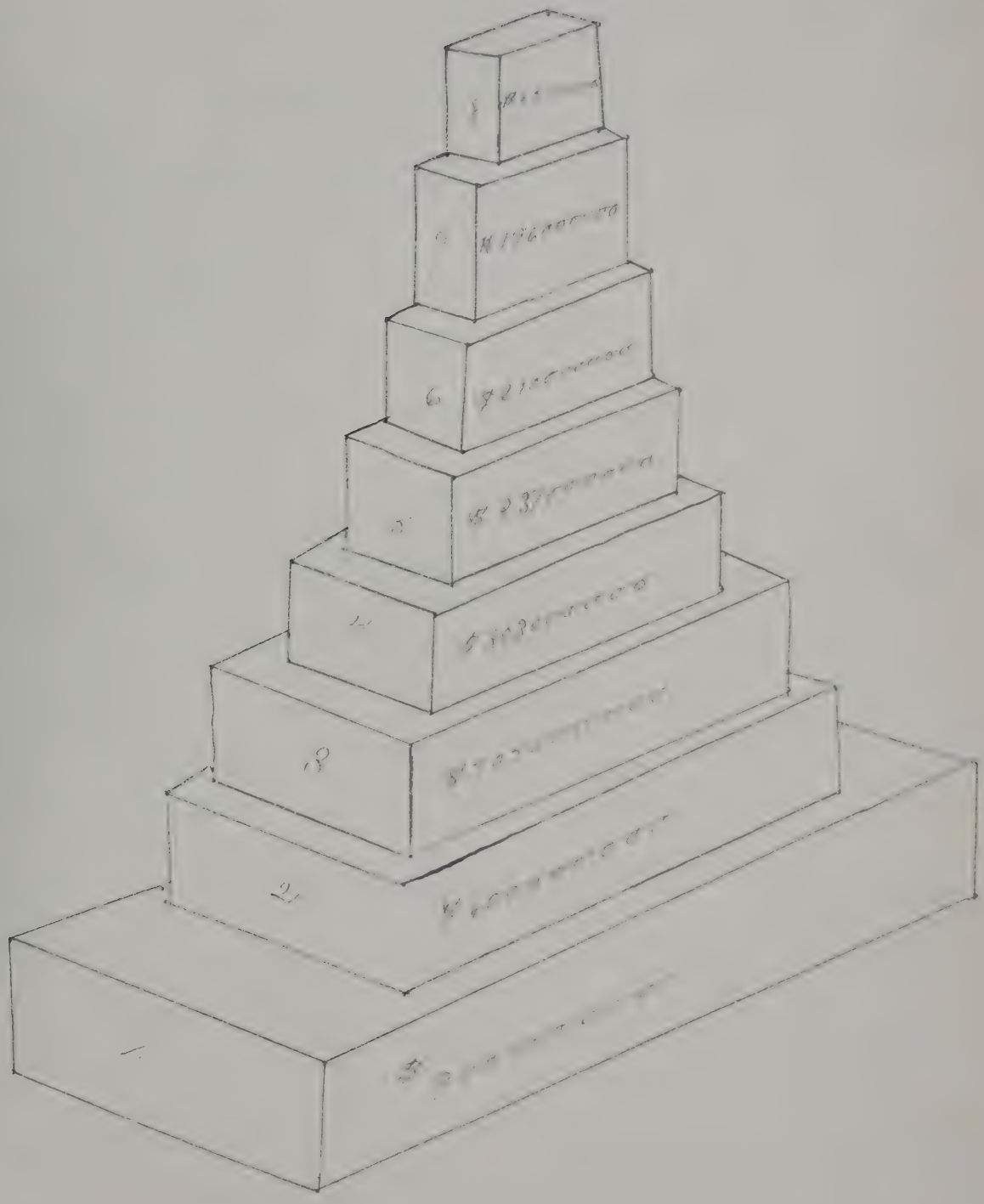
The useless ones are liquor and tobacco.

We find that there are only thirty-six millions of dollars more spent for useful

things than for useless
things.

The result of this great
waste of money is poverty.

Alice Farnsworth.



Explanation of Diagram.

This diagram is intended to show the approximate proportions of the Cranial and Facial regions.

(1) Glabella; (2) Nasion; (3) Inion; (4) Occipital point; (5) Vertex; (6) Bregma; (7) Sphenion; (8) Euryon; (9) Gonion; (10) Zygion; (11) Prosthion; (12) Alveolar point; (13) Infradentale; (14) Gnathion.

The facial angle is formed by the intersection of the lines 1-12 and 12-14.

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Explanation of Diagrams.

The object of these diagrams is to show the amount of money spent, annually, in the United States, for the necessaries of life and for liquor and labor.

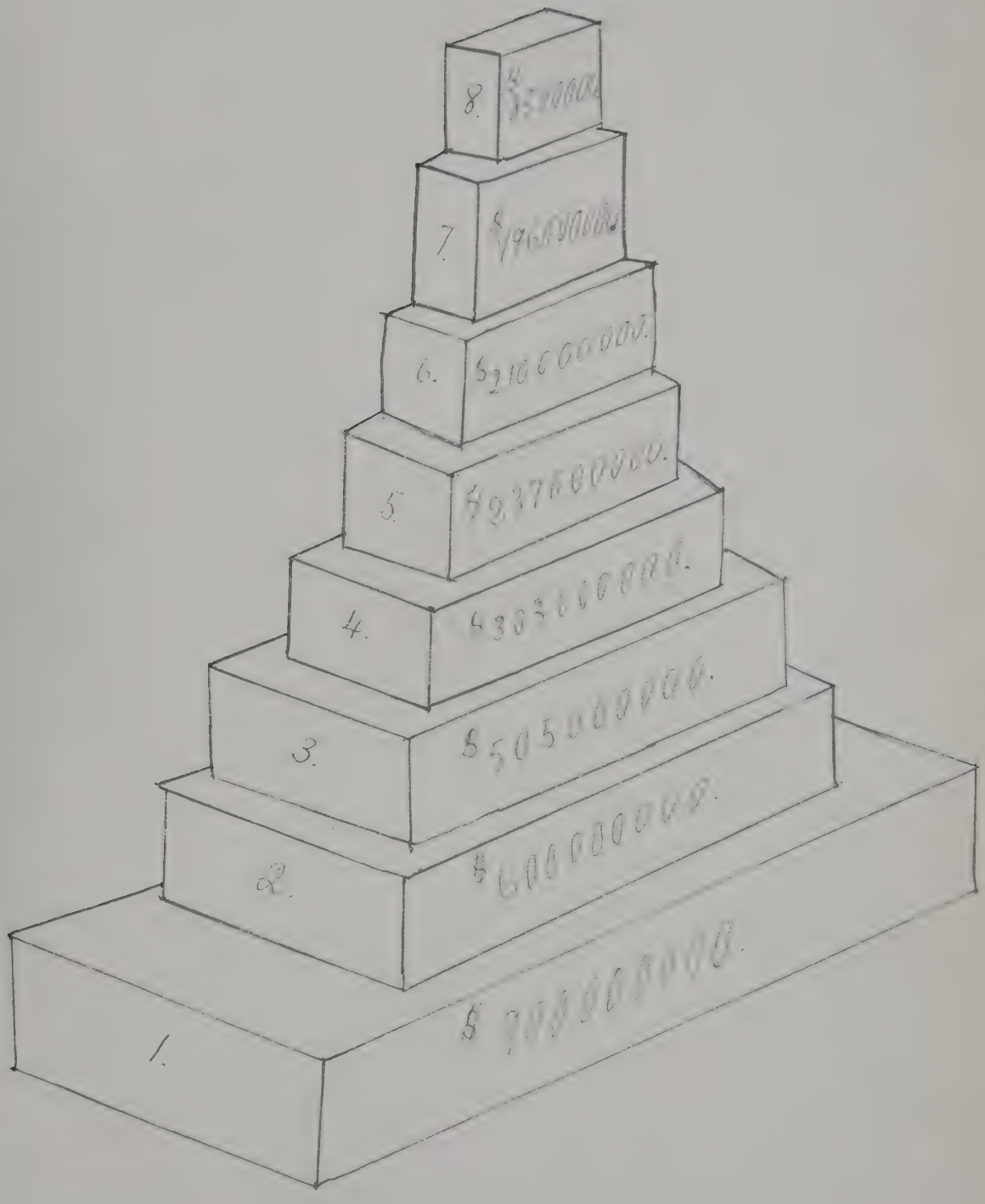
No (1) represents the amount of money spent for liquor; (2) for tobacco; (3) for bread; (4) for meat; (5) for wearing apparel; (6) for cotton goods (7) for boots and shoes; (8) for miscellaneous.

Of these eight, we are careful-ful and the other two labor and liquor are waste.

The end of the wedge is only thirty-six inches of dollars more than for labor and tobacco.

The result of all this is that some of the implements would [illegible] sooner than they otherwise would be.

Oscar Shuman.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Explanation of Diagram

The design of this diagram is to show the amount of money spent, in the United States during one year, for the needful and luxurious things.

The figure (1) indicates the amount spent for tobacco (2) for liquor, (3) for meat, (4) for woolen goods, (5) for cotton goods, (6) for boots and shoes, and (7) for education.

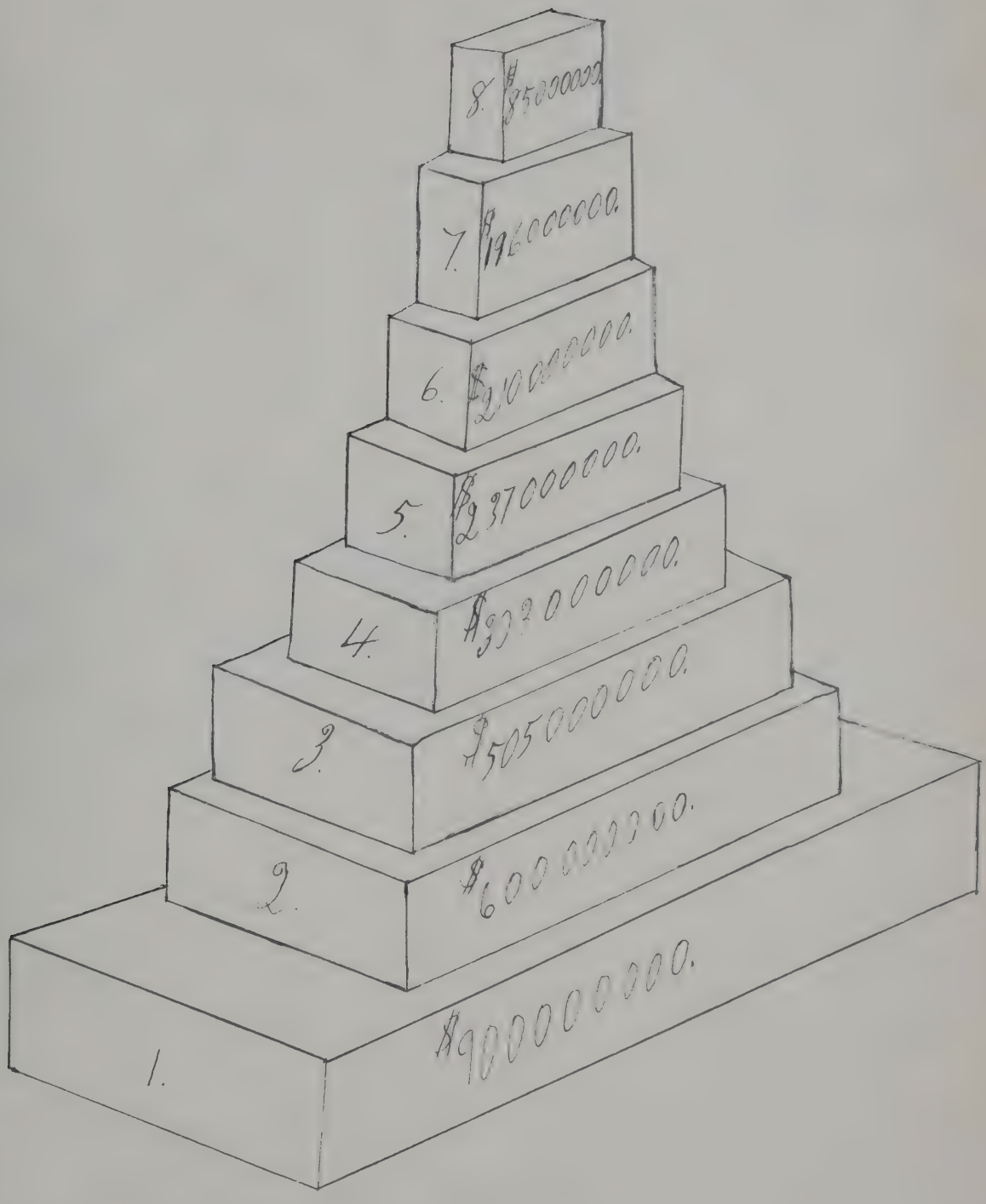
The needful articles, bread, meat, woolen and cotton goods and education

Could and should not exceed that paid for liquor and tobacco which are the useless things and not known

In adding up the amount
spent for these luxuries we find that all only
thirty six million of dollars
more spent in one year
for useless things than is
spent for liquors and tobacco.

The scale of the waste
of money is that reaches
people all over.

Walter A. Simpson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Exhibition of Designs.

The Board of Education
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The following [illegible]
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(3) [illegible]; (4) [illegible]; (5) for
[illegible]; (6) [illegible]; (7) [illegible]
[illegible]; and (8) for
[illegible].

The [illegible]
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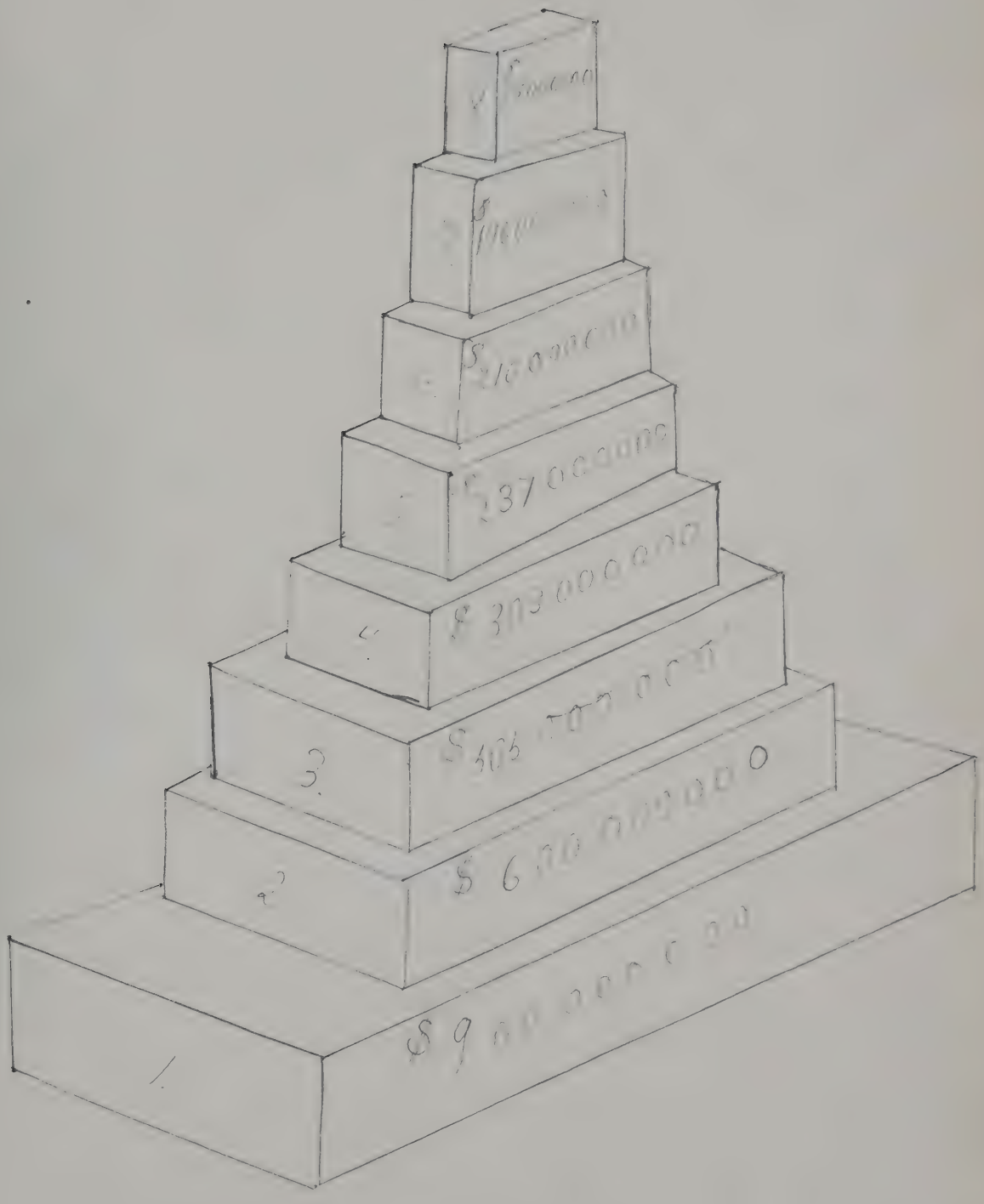
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Explanation of Diagram.

The purpose of this diagram is to show the comparative amount of money spent in the United States, in one year, for the necessaries of life, and for liquors and tobacco.

The facts indicated are that No. (1) represents the money spent for liquors; (2) for tobacco; (3) for bread; (4) for meat; (5) for woolen goods; (6) for cotton goods; (7) for boots and shoes; (8) for education.

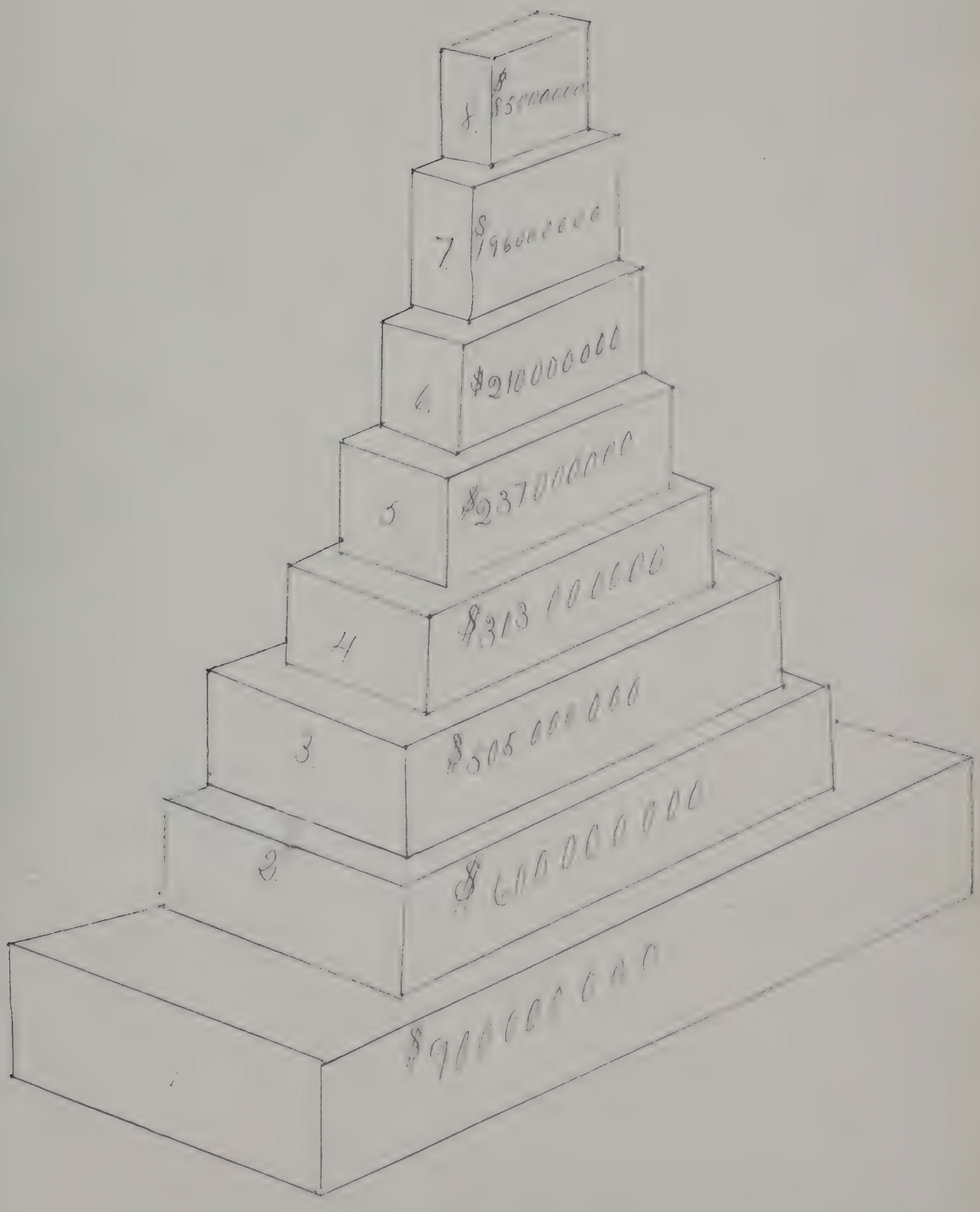
Bread, meat, cotton and woolen goods, boots, shoes, and education are the necessaries of life.

Tobacco and liquors are not needful.

Considering as to these amounts we find that the whole sum of the money spent on the United States for needful things exceeds the sum spent for liquor and tobacco only by thirty-six millions of dollars.

The result of all this waste of money is poverty.

Alice Paine.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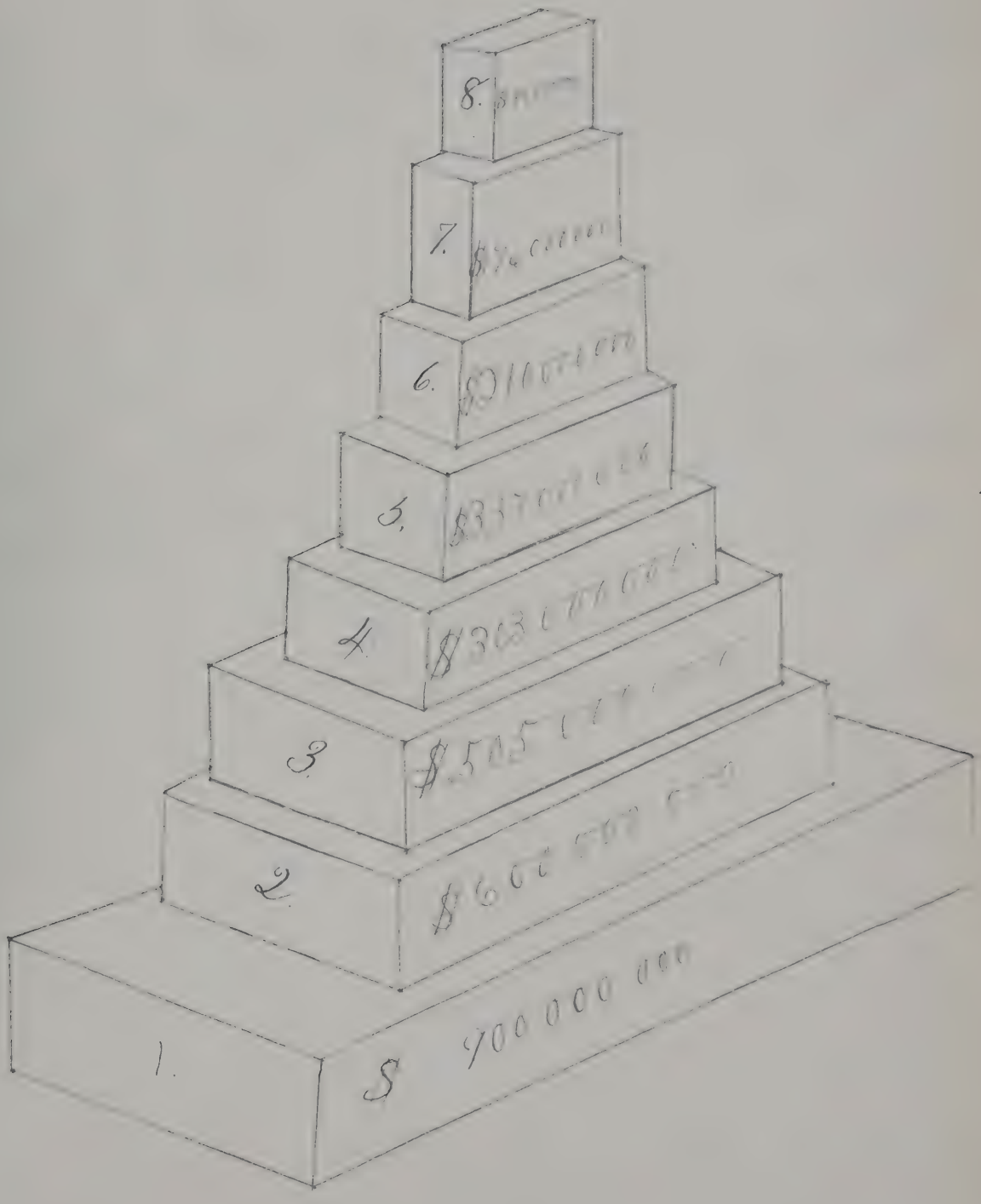
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Explanation of Diagram

The intention of this diagram is to show how much money is spent, in the United States during one year, for these various articles

Number (1) represents the amount spent for luxuries, (2) for tobacco, (3) for bread, (4) for meat, (5) for woolen goods, (6) for cotton goods, (7) for boots and shoes, (8) for education

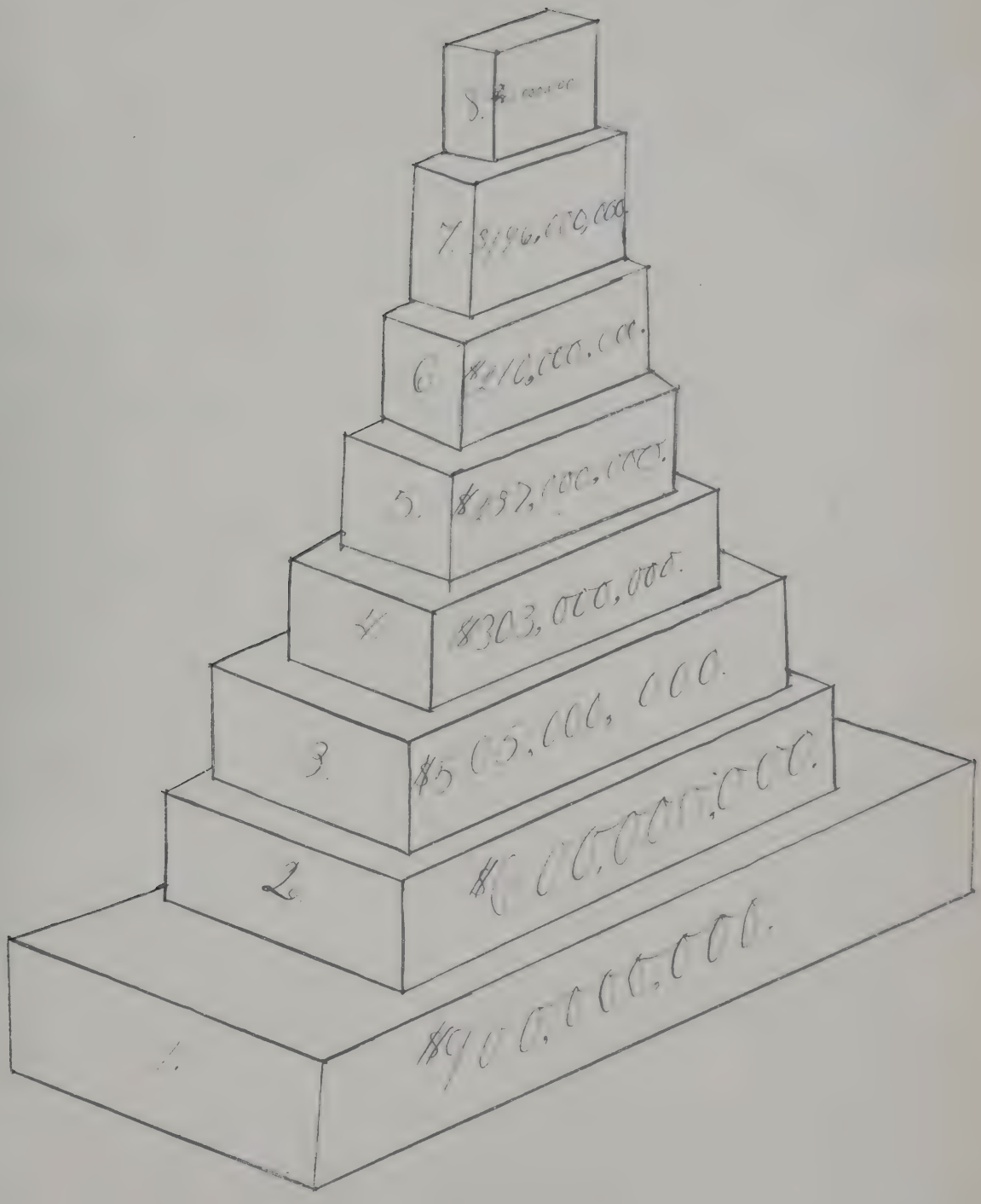
The last six are the needful things, while the two first are the useless and harmful substances.

In adding up the sum found for these articles, it is found that there are over thirty-six millions of dollars more spent for

for the accident things than
for the higher and better.

The result of this
huge waste of money is
that all more poor people
than is necessary.

Enamored Bird.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Explanation of Diagram.

The duties of Fiji are at present the subject of correspondence between the United States and this country.

Art. (1) represents the amount spent for apparel; (2) for tobacco; (3) for food; (4) for meat; (5) for woollen goods; (6) for cotton goods; (7) for boots and shoes; (8) for education.

The woollen things are the best.

The cotton things are the first two.

In adding the sums paid for these articles we find that there are only thirty-six millions of dollars

are more spent for needful things than for liquor and tobacco, which is a very good suggestion.

The result of this great waste of money is that the people are poorer than they would be if they did not spend that money for these injurious things.

Robert B Hartley.

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Explanation of Diagram

The aim of this diagram is so that people will know how much is spent yearly in the United States for various articles.

No. 1 represents the amount spent for liquor; (2) for tobacco, (3) for bread, (4) for meat, (5) for woolen goods, (6) for cotton goods, (7) boots and shoes, (8) education.

The necessary articles are bread, meat, woolen & cotton goods, boots, shoes, and education.

The unnecessary articles are liquor and tobacco.

By summing the amount paid for these articles, we find there are only thirty six millions of dollars more spent for useless things than for liquor and tobacco.

The result of this problem is that many people become

from Paul Westenys Album

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Explanation of Diagram.

The object of this diagram is to tell the amount of money spent in the United States in one year for these articles.

No. (1) represents the amount paid for liquor; (2) for tobacco; (3) for bread; (4) for meat; (5) for woolen-goods; (6) for cotton goods; (7) rent and shoes; (8) for education.

The needful articles are all except liquor and tobacco.

When we add the amounts paid for the useful things, we find that only thirty six millions of dollars more are paid for the useful things than for liquor and tobacco.

The result of this waste of money, is that some people are poor. O. L. Edwards.

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Explanation of Diagram

The area of this diagram is to show how much money is spent in the United States during a year for necessary and unnecessary articles.

Number 1 represents the amount of money spent for liquor, (2) for tobacco (3) for bread, (4) for meat, (5) for woolen goods (6) for cotton goods, (7) for boots and shoes (8) for education.

The necessary things are bread, meat, woolen and cotton goods, boots, shoes and education.

The unnecessary things are liquor and tobacco.

It is found in adding up the seven pound for the useless and unnessary things that the money spent for the needed things only equals the harmless by thirty six million dollars.

The result of this great waste of money is that one of the people of the country are paying three times as much money as need for harmful things.

Hannah Patterson